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MEHRING, A. L. ; ADAMS, J.R. JACOB, K.D.
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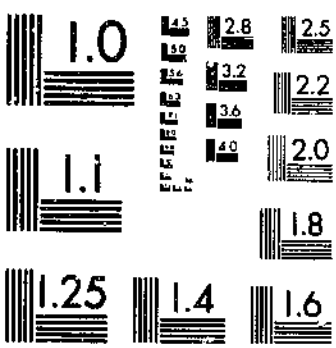

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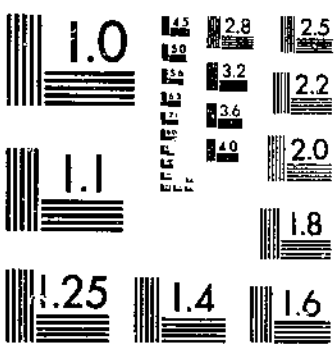

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STATISTICS

on Fertilizers and Liming Materials

in the UNITED STATES

By A. L. Mehring
J. Richard Adams
K. D. Jacob

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Soil and Water Conservation Research Branch
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

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STATISTICS on Fertilizers and Liming Materials in the UNITED STATES

By A. L. MEHRING, formerly *senior chemist*, J. RICHARD ADAMS, *senior chemist*, and K. D. JACOB, *head chemist, Soil and Water Conservation Research Branch, Agricultural Research Service*

INTRODUCTION

Justus von Liebig's fundamental studies in agricultural chemistry, in the second quarter of the last century, laid the foundation for the modern fertilizer industry. They not only spurred the exploitation of the already known deposits of sodium nitrate in Chile and of guano in the Peruvian Islands but they led to the search for other sources of plant nutrients and they paved the way for the rational application of scientific principles in the processing of fertilizer raw materials.

The first commercial manufacture of fertilizers by chemical methods is generally attributed to J. B. Lawes and J. H. Gilbert who, subsequent to the advancement of the idea by Gotthold Escher in 1835 and the experiments by Liebig (*237*)[1], established a plant in 1843 at Deptford, England, for making superphosphate by treating bones and coprolites (phosphate rock) with sulfuric acid (*7*). The manufacture of superphosphate then spread to other countries and was initiated about 1850 in the United States at Baltimore, Md., where production of mixed fertilizers was also started at approximately the same time. From these beginnings the production, trade, and use of commercial fertilizers have become major factors in the industrial and agricultural economies of many countries. It is generally agreed that continuing large expansion in the production and use of fertilizers on a worldwide basis will be needed to feed and clothe adequately the growing population.

The Food and Agriculture Organization of the United Nations (*58*) reported that the United States used a little more than one-third of the total world consumption (17,482,000 short tons) of the three primary plant nutrients—nitrogen (N), phosphoric oxide (P_2O_5), and potash (K_2O)—as commercial fertilizers in the year ended June 30, 1953. This does not take into account the phosphoric oxide in ground phosphate rock used for direct application to the soil nor the quantities of the three nutrients consumed in the Soviet Union, the Chinese People's Republic, and North Korea. However, the average total consumption of the three primary nutrients per unit of arable land in the United States (27 pounds per acre in the year ended June 30, 1951) is much lower than that in a number of other countries (*187*), for example, the Netherlands (364 pounds), Belgium (254 pounds), Germany (151 pounds), United Kingdom (105 pounds), Denmark (79 pounds), and France (48 pounds).

Within the United States and Territories, fertilizers and fertilizer raw materials are produced by more than 900 companies in at least 1,400 facilities distributed among nearly all the States and Territories. In addition, agricultural liming materials are produced by more than 1,000 companies. In 1953 the Nation used approximately 23 million short tons of fertilizers and 21 million short tons of liming materials at a total cost to the consumer of about $1.2 billion. In the same year, exports of fertilizers

[1] Italic numbers in parentheses refer to Literature Cited, p. 167.

and fertilizer raw materials totaled 2.7 million tons valued at $42 million, and imports of these products amounted to 2.9 million tons with a value of $137 million.

In the early years, fertilizer statistics for the United States were confined chiefly to annual data on exports and imports and to production figures for the specific years of the decennial census. As the fertilizer industry increased in importance the statistics were gradually extended, with the reports thereon being issued at more frequent intervals and in greater detail from a growing number of Federal, State, and other agencies. Dissemination of the data has been through a variety of channels, including trade and scientific journals, continuing series of government documents, and individual publications on specific phases of the industry. Some of the statistics—for example, those on imports, exports, and prices—are usually contained in bulky publications along with data for numerous other items. In large part the reports have covered periods of no more than a year. Furthermore, many of them have been issued in mimeographed or other processed form generally ill suited for permanent preservation so that even fairly complete files are seldom available in one place. Ready location of desired information is difficult in such a situation.

In this bulletin an attempt is made to bring together in one place comprehensive statistics of fertilizer production, consumption, foreign trade, and kindred topics, as they relate to the United States. Also included are data on agricultural liming materials, gypsum, and peat. This compilation should serve, among other things, as an aid in charting the progress in the several phases of the subject; in evaluating national, regional, and State trends in the use of fertilizers and related materials; in forecasting their requirements for future use; in developing programs for expanding their production with respect to quantities and types of products and to plant location; in studies of the economics of their use in relation to farm income, crop production, and land-management practices; and in guiding their allocation in time of emergency.

SOURCES OF STATISTICS

The statistics were obtained from many sources, both official and unofficial, including unpublished material compiled in the Soil and Water Conservation Research Branch and its predecessor agencies of the United States Department of Agriculture. Critical selection of the data was made, from the original sources where possible, and in some cases the earlier figures were revised as seemed justified on the basis of additional information. The sources of the data are indicated in the footnotes to the respective tables. It is of interest to review the nature and scope of some of the major sources of the data and to indicate other publications carrying pertinent statistics of the fertilizer and allied industries.

Production

The manufacture of chemical fertilizers in the United States began about 1850 (*89*, *98*, *165*, *206*), and "Fertilizers" appeared as a separate item for the first time in the census report for 1859 (*276*). The data for that year, as well as for 1869, included the number of plants, but the production figures were stated in terms of the dollar values only. The census report covering the year 1889 showed also the tonnages of fertilizers produced in 1879 and 1889, and beginning with 1899 the "Census of Manufactures" (*276*) has reported not only the production of the different kinds of fertilizers but also the quantities of the various materials used in making superphosphates and mixed fertilizers, as well as other information on the industry. The census of manufactures was taken at 5-year intervals from 1904 through 1919 and at 2-year intervals from 1921 through 1939. Only two such censuses (1947 and 1954) have been taken since 1939. Production and related data, such as stocks on hand, shipments, wages, and similar items, are limited to continental United States in this bulletin.

Much information on the production in 1917 and 1918 of fertilizer materials and mixtures, including the quantities of the different grades of mixtures, has been reported by Goldenweiser (*66*).

Besides the reports for the census years, statistics of the production of superphosphates in the continental United States were issued semiannually by the United States Bureau of the Census (*281*) for the years 1922–28. Subsequent reports have been issued monthly (*283*, *286*).

In the semiannual reports on superphosphate production the data are recorded separately for the southern region (comprising Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas) and for the northern and western regions (together comprising all the other States), and they are given in terms of the total quantities of superphosphates actually produced and of the available phosphoric oxide contained therein. Besides normal superphosphates, it appears that in some of these reports the production figures for the northern and western regions include unspecified quantities of concentrated superphosphate. No production of concentrated superphosphate is indicated for the southern region, although such material is known to have been made in this region during the years covered by the semiannual reports. Whether those reports include the production of wet-base and wet-mixed goods is not indicated definitely.

For the period 1929 through July 1942 the monthly reports of the census (*283*) show as separate items the total production of all grades of bulk superphosphate (including concentrated superphosphate) and the total production of wet-base and wet-mixed goods in the southern region (p. 2) and in the northern region, respectively, all on the basis of 16 percent of available phosphoric oxide. From October 1942 through June 1953 the monthly reports (*283, 286*) give the respective productions of normal superphosphate (basis 18 percent of available phosphoric oxide), concentrated superphosphate (basis 45 percent of available P_2O_5), and wet-base goods (basis 18 percent of available P_2O_5) for the continental United States as a whole. In subsequent reports (*286*) the quantities of these three products are expressed in terms of 100 percent of available phosphoric oxide, and enriched superphosphate has also been carried as a separate item since June 1954. Prior to February 1943 the monthly reports did not include the production of superphosphate materials at government-owned plants, for example, the output of concentrated superphosphate by the United States Tennessee Valley Authority.

Jacob and Shelton (*98*) have reported estimates of the quantities of superphosphate produced in each of the years 1868 to 1929. The data, which are in terms of equivalent run-of-pile normal superphosphate, were computed on the basis of the total tonnages of phosphate rock estimated to have been used in manufacturing all types of superphosphate.

Statistics of the production of normal superphosphate are available by States for several years. Such data have been reported by Jacob (*91*) for 1940 and 1941; by the United States Bureau of the Census for 1943 (*283, June 1944*), 1944 (*286, Jan. 1945*), 1945 (*286, Feb. 1946*), and 1946 (*286, Jan. 1947*); and by Adams, Tremearne, Jacob, and Porter (*17*) for 1950 and January-June 1951. Other published data on normal superphosphate for certain years since 1939 include production of different grades of the material, distribution of manufacturing facilities, plant capacities for its production and storage, and sources of sulfuric acid used in the industry (*17, 91, 92, 93*).

Concentrated superphosphate, of the type made by acidulating natural phosphates with phosphoric acid alone, was first manufactured in the United States in 1890, but it was not until 1907 that the domestic industry was placed on a permanent basis. The annual production of this material for the years 1907 to 1943 has been reported by Mehring (*185*). Manufacture of concentrated superphosphate by the United States Tennessee Valley Authority at Wilson Dam, Ala., was begun in the year ended June 30, 1935, and the annual production for that year through 1954, together with that of other fertilizer materials, is published in the Authority's reports (*323*). Estimates of the capacity for manufacture of concentrated superphosphate in several recent years are given by Adams, Tremearne, Jacob, and Porter (*17*) and Jacob (*92, 93*).

Mining of phosphate rock in the United States was initiated in South Carolina in 1867. Production statistics by States and by types of rock have been recorded annually since the early days of the industry—first by the United States Geological Survey (*307*) and subsequently by the United States Bureau of Mines (*271*). The "Mineral Industry Surveys" of the United States Bureau of Mines have included a semiannual "Mineral Market Report" on phosphate rock production since 1936. The figures for the total production in each year of the period 1868 to 1929 have been assembled by Jacob and Shelton (*98*). Summations of the production by States and types of rock for the period 1868 to 1949 are given by Jacob (*94*).

Before 1900 the production of nitrogen fertilizer materials in the United States was confined almost entirely to packinghouse wastes, fish products, oilseed meals, and other natural organic materials. It is said that the beginning of the domestic byproduct ammonia industry is commonly associated with the erection in 1893, at Syracuse, N. Y., of a battery of 12 Semet-Solvay coke ovens with recovery apparatus (*320, p. 179*). Ammonium sulfate made from byproduct ammonia supplied a steadily increasing proportion of the fertilizer nitrogen used in this country during the years 1900 to 1920, and such sulfate has continued to be an important factor. Establishment of the domestic synthetic ammonia industry on a permanent basis in 1921 paved the way for low-cost production of a wide variety of chemical nitrogen materials for the fertilizer trade, including anhydrous ammonia, nitrogen solutions, urea, and ammonium nitrate. Synthetic ammonia and its derivatives constituted nearly 90 percent of the country's production of commercial fertilizer nitrogen in the year ended June 30, 1955.

Besides the census reports (*276, 279*), extensive statistics of nitrogen production in the United States for the years prior to 1935 have been assembled by the United States Tariff Commission (*320*). Annual figures have been reported for many years by the United States Geological Survey (*307*) and the United States Bureau of Mines (*271*). Beginning with September 1941, monthly statistics of production of ammonia liquor and ammonium sulfate from coke-oven ammonia have been published by the United States Bureau of Mines in the "Monthly Coke Report" of the Bureau's "Mineral Industry Surveys." Monthly production figures for several synthetic ammonia fertilizer materials have been published in recent years by the United States Bureau of the Census in the "Facts for Industry Series M19A, Inorganic Chemicals," as follows: anhydrous ammonia, since 1940; ammonium sulfate, since 1941; and fertilizer-grade ammonium nitrate, since 1946. Beginning with 1951 the annual summary of this publication has reported the annual production figures for ammoniating solutions. Estimates of the plant capacities for annual production of synthetic ammonia have been reported for several years of the period 1930 to 1954 (*54, 238, 294, 320*).

Prior to World War I, wood ashes and other plant products supplied practically all of the output of potash fertilizer materials in the United States. Recovery of potash from mineral sources was started during the war, and the brines of Searles Lake, Calif., subsequently furnished the greater part of the domestic production of potash salts until the early 1930's (*244, 245*). With the initiation in 1931 of production of potash from the recently discovered deposits of soluble minerals in New Mexico, steady progress was made toward self sufficiency in supplies of this nutrient so that by 1941 the domestic industry had been developed on a scale capable of suppying the Nation's needs for potash.

Statistics of potash production, like those of phosphate rock and nitrogen, have been published in the various census reports (*276, 279*) and annually by the United States Geological Survey (*307*) and the United States Bureau of Mines (*271*). Although production figures are not available for periods shorter than a year, statistics of deliveries of potash salts have been issued quarterly by the American Potash Institute (*21*) since 1935.

Consumption

The sources of information on consumption of fertilizers and plant nutrients in the United States are generally more diverse and less complete than those dealing with the production of these commodities.

The expenditures for fertilizer and the number of farms on which it was used have been reported by States and counties for each of the years covered by the "Census of Agriculture" (*277*) in the period 1879 to 1939. In addition the quantities of fertilizer used were reported for 1929 and of fertilizers and liming materials for 1939. The county data on fertilizer consumption in 1939 have been summarized by the National Fertilizer Association (*174*). The reports of the censuses for 1944 and 1949 contained no data on fertilizers. The 1954 "Census of Agriculture" shows by counties the total tonnages and values of commercial fertilizer and liming materials used and the number of acres on which they were used. It also gives the same information for a limited number of crops.

Statistics of the long-time national consumption of fertilizers, each of the primary nutrients (nitrogen, phosphoric oxide, and potash), and liming materials are reported in "Historical Statistics of the United States 1789-1945" (*289*). The data for fertilizers and nutrients are given for every tenth year of the period 1850 to 1890 and for each year from 1891 to 1945.

Relatively little information is available on the quantities of fertilizer used in the individual States in the earlier years. The National Fertilizer Association (*168*) estimated the consumption in each State in the years ended April 30, 1882 to 1887, and similar data were compiled by Holmes (*78*) for the calendar years 1891 to 1897. Statistics of fertilizer consumption in the late 1800's and early 1900's have been reported for California (*38, Spec. Pub. 52*), Indiana (*83, Bul. 262*), Mississippi (*159*), New Jersey (*41*), Texas (*62*), and a number of other States.

Willett (*339*) has assembled data on the annual fertilizer consumption in the individual States for the years 1910 to 1936. Such information for each year since 1923 has been reported also in "Agricultural Statistics" (*298*); beginning with 1943 the data have included the respective quantities of nitrogen, phosphoric oxide, and potash. As of 1955, Puerto Rico and all the States except New York were collecting statistics on their annual consumption of fertilizers. The majority of the States report the data by semiannual periods ending June 30 and December 31, respectively, and a few by months or quarters.

Besides the previously mentioned reports of the "Census of Agriculture" covering the years 1929 and 1939, statistics of the county consumption of fertilizers in certain years are available for several States, namely, Alabama (*18, 19*), Arkansas (*25, 26*), Florida (*61*), Georgia (*65*), Kansas (*106, 107*), Kentucky (*109*), Louisiana (*115*), Minnesota (*70*), Mississippi (*158*), Missouri (*160, 161*), New Mexico (*180*), North Carolina (*183*), Oklahoma (*186*), South Carolina (*46*), Tennessee (*239*), and Texas (*62, 63, 88, 241*). The first reports for Kentucky and South Carolina covered, respectively, the periods July–December 1954 and July 1954–June 1955.

Goldenweiser (*66*) has reported the respective quantities of the principal grades of mixed fertilizers produced in 1917, and a similar survey was made by the National Fertilizer Association for 1925. The results of the Association's study were not published in full, but some of the data have been given by Brand (*36*) and by Mehring, Deming, and Willett (*146*). Although the consumption of fertilizers in any one year often approximates fairly well the production in that time, the quantity actually shipped to the trade affords a more accurate measure of the use. The first comprehensive survey of shipments of the different kinds and grades of fertilizers and of the quantities of primary nutrients contained therein, for each of the States and Puerto Rico, was made by the National Fertilizer Association in cooperation with the United States Department of Agriculture for the year ended June 30, 1934 (*150*). The next survey of this kind, also made by the Association in cooperation with the Department, covered the year ended June 30, 1939, and included data for the District of Columbia (*146*). A similar survey made by the Department for the calendar year 1941 included Hawaii (*151*). Beginning with the year ended June 30, 1943, the surveys have been made annually by agencies of the Department, since 1951–52 by the Soil and Water Conservation Research Branch, Agricultural Research Service (*140, 153, 154, 216, 217, 218, 220, 221, 222, 223, 224, 225*). In this bulletin, these 12 surveys and the one for 1941, as well as the 2 sur-

veys made in cooperation with the National Fertilizer Association, usually are designated as Branch surveys.

For many years the National Fertilizer Association (*169, 175*) and its successor the National Plant Food Institute (*177*) have compiled estimates of the monthly shipments of fertilizers for several States. The estimates were based at first on sales of fertilizer tax tags in the respective States, but in later years the tonnages computed in this way have been supplemented with data from other sources.

A study of the nonfarm use of fertilizers and primary nutrients in each of the States and the District of Columbia during the year ended June 30, 1948, was made by Scholl and Wallace (*219*). There are no studies of this kind for other years.

Data on the quantities of different fertilizers applied in the individual States and Territories under the agricultural conservation programs have been published for each year since the programs were initiated in 1936 (*312*).

For many years prior to their discontinuance with the data for 1953, the Crop Reporting Board (*261, 262, 263*) compiled estimates of the tonnages of fertilizer used annually on cotton in the individual States; also included was information on the proportion of the cotton acreage that received fertilizer and the average rate of application per acre fertilized. Other sources of information on the quantities of fertilizer applied to specific crops in certain years include the surveys made by the National Fertilizer Association (*172*) for 1927, 1938, and 1944; a survey by Ibach and Marx (*81*) for 1947; a report on tobacco fertilizers by Mehring (*139*); and unpublished surveys for 1942 and 1950 made, respectively, by the United States Office of Agricultural War Relations and by J. N. Lowe, United States Production and Marketing Administration.

The total quantities of liming materials applied to crops and pastures, respectively, in each region of the United States in 1947 have been estimated by Ibach and Marx (*81*).

Based on a survey made by the National Fertilizer Association (*172*), Parker (*194*) has estimated the respective quantities of nitrogen, phosphoric oxide, and potash used as farm manures on certain crops in several States and regions in 1927. Mehring and Parks (*148*) have estimated the total quantities of each of the primary nutrients applied as fertilizers to pastures and harvested crops, respectively, in the individual States in 1947, as well as the quantities of the nutrients applied as farm manures to harvested crops. The survey by Ibach and Marx (*81*) for 1947 included the quantities of each of the primary nutrients applied to specified crops in the several regions of the United States. In the unpublished survey made by J. N. Lowe, United States Production and Marketing Administration, for the year ended June 30, 1950, estimates were made of the quantities of each of the primary nutrients applied as fertilizers to specified crops in the individual States.

Statistics of the total national consumption of agricultural liming materials for each year of the period 1909 to 1945 have been assembled in "Historical Statistics of the United States 1789–1945" (*289*), and data on the use of limestone, burned lime, hydrated lime, and marl have been reported for many years by the United States Geological Survey (*307*) and the United States Bureau of Mines (*271*). For more than 30 years annual statistics of the national production of oyster and clam shells as agricultural liming materials have been available (*268, 269, 305, 306*); it may be assumed that the consumption has approximated roughly the production. The use of iron blast-furnace slag as a liming material has been reported annually since 1940 by the United States Bureau of Mines (*271*).

The annual consumption of agricultural liming materials in the individual States in 1929 to 1947 is given in "Agricultural Statistics" (*298*). Surveys of the consumption of the different kinds of liming materials in the individual States have been made annually since 1928 by the National Lime Association (*176*), and similar surveys for all liming materials in terms of equivalent agricultural limestone were initiated in 1948 by the National Agricultural Limestone Institute (*166, 167*). Statistics of the quantities of liming materials (expressed as standard ground limestone equivalent) applied in the respective States and Territories under the agricultural conservation programs are available for each year since the initiation of the programs in 1936 (*312*).

Foreign Trade

Annual statistics of the foreign trade of the United States and Territories in specified kinds of fertilizers and fertilizer materials have been recorded for more than 100 years in "Foreign Commerce and Navigation of the United States" (*270, 275, 284, 324*). Imports are shown by countries of origin and exports by countries of destination, and the customs districts of entry or departure have been given since 1855–56. Statistics by months or quarters have been published in "Summary of Foreign Commerce of the United States" (*280*) since 1865. Data on the foreign trade in fertilizers, listed by commodities and countries of origin or destination, have been compiled by the Bureau of the Census for 1945 and subsequent years (*287, 288*). Beginning with 1920, annual figures on the imports and exports of certain fertilizers and fertilizer materials have been recorded for the respective ports in "Water-Borne Commerce of the United States" (*311*).

Imports and exports of fertilizers and fertilizer materials in each of the years 1884 to 1896 have been listed by Holmes (*78*). For many years information on the foreign trade in phosphate rock, potash salts, and several other fertilizer materials has been reported annually in the appropriate

chapters of "Mineral Resources of the United States" (271, 307) and the "Minerals Yearbook" (271). In the later years the data often have included the sources of the imports and the destinations of the exports.

Receipts of saltpeter—one of the early fertilizer materials, if not the earliest, to be imported into the United States—were recorded for the first time in the issue of "Foreign Commerce and Navigation of the United States" covering the foreign trade in the year ended June 30, 1845. This designation (saltpeter) included sodium nitrate, potassium nitrate, and mixtures of the two, which later were shown as individual items. Imports of guano first were reported for 1847-48, phosphate rock for 1882-83, and potassium chloride for 1883-84. By 1900, statistics were available for ammonium sulfate, sodium nitrate, potassium nitrate, oilseed meals, certain packinghouse and fish products, guano, crude phosphates, kainit, potassium chloride, potassium sulfate, crude potassium carbonate, and for a group of unspecified fertilizers. The statistics of imports in 1938 covered 38 individual commodities under the fertilizer classification, while 30 such commodities were covered in the statistics for 1954 (288).

Exports of fertilizers were shown for the first time in the issue of "Foreign Commerce and Navigation of the United States" covering the trade in 1863-64. Phosphate rock soon became the principal item of fertilizer export, but it was not until 1898 that data for this commodity were recorded separately in "Foreign Commerce and Navigation." The statistics of exports in 1951 covered 17 individual commodities under the fertilizer classification (287). Exports of foreign merchandise in 1954 included 5 commodities under this classification.

Data on the respective total imports and exports of phosphate rock for each year of the period 1868 to 1929 have been assembled from several sources by Jacob and Shelton (98).

Domestic Movement of Fertilizers

Movement of fertilizers in the domestic trade is by rail, by water, and by truck. The United States Bureau of Transport Economics and Statistics (290, 291, 292, 293) compiles the carload movements of fertilizers by class I railways (those which have a gross income of at least $1 million annually). These railways carried 97.5 percent of the total revenue tons carried by railroads in 1950 and 95 percent in 1953. The tonnages originating and terminating in the individual States are reported.

The tonnages of fertilizers moved by water in 1920 and subsequent years are shown for the individual ports and waterways in "Water-Borne Commerce of the United States" (311). Receipts of guano from islands belonging to the United States were reported in "Foreign Commerce and Navigation of the United States" (275, 324) prior to 1901, as also were the shipments of fertilizers from the mainland to Hawaii in 1891 to 1915 and to Alaska and Puerto Rico in 1900 to 1915. Shipments to the Territories in 1916 to 1947 usually have been recorded in the respective December issues of "Summary of Foreign Commerce of the United States" (280) and also in the June issues in some years.

Only limited information is available on the truck movement of fertilizers. Statistics thereon are included in the report of a survey made by the National Fertilizer Association (173) for the year ended June 30, 1931. Data on truck shipments from two regional cooperative fertilizer plants in the West North Central region in the fall season of 1952 and the spring season of 1953 have been reported by Scroggs and Byrne (227).

Miscellaneous Items

Besides the publications contributing to the data in this bulletin, there are numerous others that contain statistics relating not only to the topics treated herein but also to other phases of the domestic fertilizer industry. Thus a wealth of information on the resources and reserves of fertilizer raw materials in the United States has been reported by Dolbear (58), Jacob (90), Josephson and Downey (105), McKelvey (124), Mansfield (127, 128, 129, 130), and others (122, 125, 234, 296, 296, 341, 342).

"The Mineral Industry," published annually in 1893 to 1910 by the Hill Publishing Company and in 1911 to 1942 by the McGraw-Hill Book Company, carries detailed statistics of fertilizer minerals for the United States and foreign countries. Millar (157), Wyatt (344), and especially Wright (343) give much information on the production, shipments, costs, and prices of phosphate rock from the various United States deposits prior to 1895, and Johnson (100) has compiled similar data for the period 1900 to 1928. A comprehensive study of employment and output per man-hour in the domestic phosphate rock industry has been made by Haskell and Kiessling (73). Output per man-hour in the superphosphate and mixed fertilizer industries is reported by Klayman (110), Moss (164), and Smith (243). Statistics of potash for certain periods have been summarized by Backman (33) and Turrentine (246) and those of nitrogen and sulfur by Johnson (101) and Ridgway (210), respectively. Lowe (118) has compiled data on the direct use of anhydrous ammonia and nitrogen solutions as fertilizers, and statistics of the consumption of fertilizer-pesticide mixtures are given by Jacob (95, 96).

In addition to the report issued in 1916 (300), several subsequent publications of the United States Federal Trade Commission (301, 302, 303, 304) contain statistics of the fertilizer and allied industries. Except for the year ended June 30, 1946, reports on domestic supplies of fertilizers and plant nutrients have been issued annually for a number of years, first by World War II agencies (308, 325, 326) and subsequently by the United States Depart-

ment of Agriculture (*117, 119, 147, 201, 202, 295, 313, 314, 316, 317, 318, 319*). Some of the reports include data on consumption of fertilizers and plant nutrients and their use on various crops, nutrient requirements, farmer expenditures for fertilizers, and progress in programs for expanded fertilizer production.

Statistics of the fertilizer operations of farmer cooperative groups are given in publications issued by the Farm Credit Administration and the Farmer Cooperative Service (*13, 14, 15, 16, 111, 112, 118, 226*).

Wholesale price indexes of fertilizer materials and mixed fertilizers, as two separate groups, have been compiled annually by the Bureau of Labor Statistics, United States Department of Labor, since 1912; except for the period 1926 to 1932, inclusive, monthly data are available. Beginning in 1951 this series has included nitrogenates and phosphates, as separate groups. For some time, the Bureau of Labor Statistics has also compiled wholesale prices of certain individual fertilizer materials, as well as of mixed fertilizers, for several regions of the country. Fertilizer prices and price indexes have been published by the National Fertilizer Association for a number of years prior to 1941 (*228, 338, 340*). Price indexes of fertilizer materials for the period 1940 to 1954 have been revised by Poffenberger (*200*) so as to include new materials and to weight the index on the basis of current consumption.

Studies of freight costs for several fertilizer materials between numerous points in recent years have been reported by Conyers (*49, 50, 51*), Conyers and Byrne (*52*), and Scroggs and Byrne (*227*).

Fertilizers in Foreign Countries

Although statistics of fertilizers in foreign countries are not included in this bulletin, mention of some of the sources of such information may be helpful to persons interested in tracing the worldwide progress in this field.

The first organized effort to bring together in one place a continuing series of worldwide statistics of fertilizers was made by the International Institute of Agriculture. Thus the issues of the "International Yearbook of Agricultural Statistics" for 1913 and 1914 to 1939–40 (*86*) contain a section in which official and other statistics relative to production, consumption, and trade of fertilizers for the calendar years 1905 to 1939 are arranged by commodities for various countries. As pointed out by Clark and Sherman (*44*), this publication has its limitations as to data for the individual countries, but it is nevertheless the most complete and accurate source of fertilizer statistics on a worldwide basis for any period preceding World War II.

Since the war the Food and Agriculture Organization of the United Nations has published statistics (*58, 252, 254, 255, 256, 258, 259*) of the world production and consumption of fertilizers by countries in terms of the three primary nutrients—nitrogen, phosphoric oxide, and potash. The reports, which are presented in considerable detail, contain much information on the factors influencing the supply of fertilizers, the international trade, progress in fertilizer technology and facilities, prices and subsidies, and estimates of future requirements for fertilizers. Average prices paid for fertilizers in recent years by farmers in a number of European countries are reported in several publications from the United Nations Economic Commission for Europe (*249, 250, 251*). Other United Nations publications providing statistical and technical information on fertilizers include reports on Latin America (*57, 257*) and Asia and the Far East (*248, 253*).

Detailed data, by countries, on the world production, consumption, and trade of nitrogen, phosphoric oxide, and potash in fertilizers for several years prior to World War II have been compiled by Clark and Sherman (*44*). Also included are similar data for phosphate rock and estimates of the consumption of plant nutrients per unit area of land. The world situation as regards fertilizers before the war and in several postwar years has been reviewed by the Commonwealth Economic Committee (*47*), with special reference to the Commonwealth countries. Progress in the production, consumption, trade, and use of fertilizers in countries represented in the Organisation for European Economic Cooperation is set forth in several publications (*187, 188, 190, 191, 192*).

Statistics of the world nitrogen industry for several years prior to 1935 have been compiled by Ernst and Sherman (*59*) and the United States Tariff Commission (*320*). An annual report on the world status of nitrogen, including production, consumption, trade, and prices, has been issued for many years by Aikman (London) Limited. Publication of this report was discontinued in 1931 but resumed in 1947. Statistics of the production, consumption, exports, and prices of ammonium sulfate for the United Kingdom are given in the reports of the British Sulphate of Ammonia Federation, Limited, which have been issued annually over a long period; data on the world production and consumption of nitrogen are included. In a report on the nitrogen situation and outlook in numerous countries for the 4-year period 1947–48 to 1950–51, the International Emergency Food Council Committee on Fertilizers (*85*) gives estimates of the annual requirements of nitrogen for various crops, the production (including data by types of material), utilization, exportable surpluses, and import requirements of nitrogen, and the practical operating capacities of nitrogen plants.

Among other commodities of interest to the fertilizer industry, annual statistics of the production of phosphate rock, potash, and sulfur in foreign countries have been carried for many years in the "Minerals Yearbook" and its predecessor "Mineral Resources of the United States" (*271, 307*). "The Mineral Industry," mentioned on page 6, contains similar data, as well as information on the interna-

tional trade in the several products. Comprehensive statistics of the world production, consumption, and trade of phosphate rock and superphosphate have been compiled by A. N. Gray (*67, 68*), a longtime secretary of the International Superphosphate Manufacturers' Association. Other sources of statistics of fertilizers and related materials in foreign countries include publications by Baade and Ewald (*32*), Johnson (*102*), and the Organisation for European Economic Co-operation (*189*).

DEFINITIONS AND TERMINOLOGY

New terms peculiar to the fertilizer vocabulary have come into use during the years. Some of these terms are no longer used, and the meaning of others has been modified. There are instances where a term has more than one meaning in the fertilizer vocabulary, and others where a term has an entirely different meaning in other fields. Sometimes, different terms have identical meanings. Of great value in the clarification and standardization of fertilizer terminology has been the work of the Committee on Definitions of Terms and Interpretation of Results on Fertilizers established in 1922 by the Association of Official Agricultural Chemists (*74, 211*). Beginning in 1948 the work of this committee has been continued by the Association of American Fertilizer Control Officials (*27*). For a better understanding of the data in this bulletin and as an aid to those who may wish to trace further the evolution of fertilizer production and use, certain terms will be discussed briefly.

Agricultural liming material.—The Association of Official Agricultural Chemists (*30, p. 895*) and the Association of American Fertilizer Control Officials (*28, p. 18*) define agricultural liming material as "material whose calcium and magnesium content is capable of neutralizing soil acidity." Commercial materials of this kind used in the United States include high calcium and dolomitic limestones, burned lime, hydrated lime, mollusk shells, marl, and waste and byproduct materials from industrial operations—including calcium silicate slags from blast and phosphorus furnaces and other sources.

All fertilizers.—In this bulletin the term "all fertilizers" embraces mixed fertilizers, fertilizer materials, and all other commercial fertilizer products. It includes secondary- and trace-nutrient materials and commercially distributed sewage products and dried manures. It does not include agricultural liming materials, farmyard manures, and sewage products given away at disposal plants.

Ammoniated superphosphate.—Ammoniated superphosphate formerly was defined by the Association of Official Agricultural Chemists as "a product containing superphosphate and/or dissolved bone and nitrogenous compounds, but without the addition of potash (adopted 1930)" (*29, p. 683*). The Association later redefined the term as specifically signifying "the product obtained when superphosphate is treated with ammonia or with a solution containing free ammonia and other forms of nitrogen dissolved therein (adopted 1940)" (*30, p. 895*). This definition, also adopted essentially by the Association of American Fertilizer Control Officials (*28, p. 14*), has found general acceptance in the United States.

Ammonium nitrate, fertilizer-grade.—The term "fertilizer-grade ammonium nitrate" designates the granular products which have been coated with an anticaking agent. As now marketed, they usually contain 33 to 34 percent of nitrogen.

Ammonium nitrate–limestone mixtures.—Mixtures of ammonium nitrate and either high calcium or dolomitic limestone is designated by the term "ammonium nitrate–limestone mixtures." As marketed in the United States, the mixtures usually contain 20.5 to 21.0 percent of total nitrogen. They have been sold under a number of names, including "Cal-Nitro," "A-N-L," "Nitrolime," "Amnical," and "Calmonite."

Ammonium phosphates.—As used in the fertilizer industry, the term "ammonium phosphates" commonly embraces not only the fertilizer grades of the monoammonium and diammonium salts but also their mixtures with ammonium sulfate. Among these products that have been marketed in the United States are the 11–48 (11 percent nitrogen and 48 percent available phosphoric oxide) and 21–53 grades of the monoammonium and diammonium compounds and the 13–39, 16–20, and 20–20 grades of ammonium phosphate-sulfate mixtures. The trade name "Ammo-Phos" has been applied for many years to one manufacturer's production of the 11–48 and 16–20 grades and recently to the 13–39 grade, also. A 21–53 grade of diammonium phosphate is marketed under the designation "DAP," and a mixture of diammonium phosphate and ammonium sulfate, 20–20 grade, formerly was imported from Germany under the name "Leunaphos."

Ammonium sulfate-nitrate.—The term "ammonium sulfate-nitrate" refers essentially to the double salt of ammonium sulfate and ammonium nitrate, containing 26 percent of nitrogen. Manufactured in Germany, this material has been marketed in the United States under the names of, first, "Leunasalpeter" and, recently, "Montansalpeter."

Available phosphoric oxide.—As used in this bulletin the term "available phosphoric oxide" refers to phosphoric oxide (P_2O_5) soluble in water and neutral ammonium citrate solution according to the method of the Association of Official Agricultural Chemists (*31, pp. 10–11*). Also included in the term is the phosphoric oxide of basic slag that is soluble in 2-percent citric acid solution according to the official method formerly used for evaluating

this material (*30, p. 25*). It should be mentioned, however, that several changes have been made in the method for determining available phosphoric oxide (*35, 71, 97, 99, 212*), which generally have resulted in somewhat higher values.

Bone phosphate of lime.—In the phosphate rock industry the phosphoric oxide content of the rock usually is expressed in terms of its tricalcium phosphate equivalent ($Ca_3(PO_4)_2$). In the domestic trade it is commonly designated as "bone phosphate of lime" (abbreviated B.P.L.), a term carried over from the early days of the industry.

Grade designations.—It is now the uniform practice in all the States and Territories to express fertilizer grades in terms of the percentages of total nitrogen, available phosphoric oxide, and soluble potash, in the order N, P_2O_5, K_2O. Also, statement of guarantees of mixed fertilizers is generally required to be given in whole numbers. In some States it was formerly the custom, however, not only to express nitrogen guarantees, grades, and analyses in terms of ammonia (NH_3) but also to designate the nutrients in the order P_2O_5, N (or NH_3), K_2O, and expression of mixed-fertilizer grades and guarantees in fractional numbers was widely practiced.

The National Fertilizer Association (*170*) recommended in 1928 that the term "nitrogen" be used instead of "ammonia" and that the nutrients be stated in the order N, P_2O_5, K_2O. Such interpretations, together with the requirement that guarantees of mixed fertilizers be stated in whole numbers, were adopted in 1930 by the Association of Official Agricultural Chemists (*30, p. 903*) and in 1953 by the Association of American Fertilizer Control Officials (*28, p. 11*). Since conformance with these recommendations and interpretations necessitated changes in the laws of many of the States, it was some years before uniformity among the States was fully attained. South Carolina, on August 1, 1939, was the last State to change from the ammonia to the nitrogen basis and to adopt N, P_2O_5, K_2O as the order of expressing the primary nutrients. The change from ammonia to nitrogen was not made in Puerto Rico until January 1, 1951.

Guano.—As pointed out by Moore (*163, pp. 51–52*), the term "guano" has been applied to many materials which vary greatly in their source, nature, composition, and other characteristics, so that in using the term it is necessary to designate specifically the substance meant. Although the use of the unqualified term appears to be restricted now largely to the material consisting chiefly of the excrement of sea birds, it has been applied to the excrement of bats and other mammals, as well as to other natural organic materials and even to manufactured fertilizers of all sorts. The term "phosphoguano" designates the high-phosphorus material resulting from the leaching of the soluble constituents of guano, into the underlying deposits of calcium carbonate and other basic materials. In the statistics of this bulletin the kind of guano is designated specifically, in so far as this is possible.

Natural organic materials.—The sources of primary nutrients in commercial fertilizers include a wide variety of natural organic substances which collectively are termed natural organic materials or natural organics. Among these substances are the oilseed meals, animal and process tankages, dried blood, hoof and horn meal, fish products, tobacco stems, garbage tankage, guanos, activated sewage products, and dried manures.

Nitrogen solutions.—The term "nitrogen solutions" was restricted at first to solutions of ammonium nitrate in aqua ammonia marketed by one manufacturer. Now, however, the term is used broadly in the fertilizer industry to designate aqueous nitrogen solutions in general and from all sources. These solutions include aqua ammonia, straight ammonium nitrate solutions, solutions of ammonium nitrate with urea or sodium nitrate, and solutions of ammonium nitrate or urea in aqua ammonia.

Phosphoric oxide.—For many years it has been the custom to designate phosphorus pentoxide (P_2O_5) by the term "phosphoric acid." Until very recently (*208*) this practice had been followed by the Association of Official Agricultural Chemists since its formation in 1884, and it is still sanctioned by the Association of American Fertilizer Control Officials (*28, p. 14*). Such use of the term, a survival of the older chemistry, is followed in most if not all countries, and it is chronicled in the dictionaries. In the parlance of modern chemistry, however, the term "phosphoric acid" properly refers to the compound H_3PO_4, not to P_2O_5. Thus, we have the anomaly of two different compounds being designated by the same name. With the recent advent of liquid phosphoric acid (H_3PO_4) as a fertilizer and as an article of commerce in the fertilizer industry, this anomaly has caused much confusion.

Cognizance of the situation was taken by the Association of Official Agricultural Chemists in 1954 when the "Report of the Committee on Recommendations of Referees" (*208*) included the recommendation:

> That in any A.O.A.C. method, wherever the term "phosphoric acid" is used to refer to P_2O_5, it be replaced by one of the following designations: "P_2O_5"; "phosphorus pentoxide", "phosphoric oxide"; and further, that the more general term "phosphorus" be used wherever this can be done without ambiguity, e. g., "water-soluble phosphorus", "citrate-insoluble phosphorus", etc.

In this bulletin, P_2O_5 and H_3PO_4 are designated by the terms "phosphoric oxide" and "phosphoric acid," respectively.

Plant nutrients.—As used in this bulletin, the term "plant nutrients" refers to the nutrient elements in the forms whereby they are customarily expressed in fertilizer analyses and guarantees. Included in this term, which is synonymous with

the term "plant food" as commonly used, are the so-called primary, or major, nutrients nitrogen, phosphoric oxide, and potash; the secondary nutrients calcium, magnesium, and sulfur; and the trace, or minor, nutrients boron, copper, iron, manganese, molybdenum, zinc, and others.

Potash.—Like phosphoric oxide, the term "potash" has more than one meaning. Originally applied specifically to crude potassium carbonate (K_2CO_3) obtained from wood ashes, it now is used often as a synonym for potassium (K) and generally to designate potassium oxide (K_2O). In fertilizer grades and guarantees, the term "potash" with or without the qualification "soluble," commonly means the oxide equivalent of the potassium soluble in water or in ammonium oxalate solution according to the official methods of analysis (*31, pp. 17–19*), and the term is so used in this bulletin. Prior to 1935, solubility in water was the only laboratory criterion of potash value for fertilizer purposes.

The terms "potassium chloride," "potassium sulfate," and "potassium nitrate" are used in this bulletin in preference to the respective corresponding but antiquated terms "muriate of potash" or "chloride of potash," "sulfate of potash," and "nitrate of potash."

Separate material.—The term "separate material" is used generally in this bulletin to designate an individual material that is applied directly as a fertilizer, as distinguished from a material that is applied in mixture with other materials. Many materials are applied in both ways.

Sodium nitrate.—As used in this bulletin, the term "sodium nitrate" embraces all products consisting essentially of this compound. In the fertilizer trade these products have been called "nitrate of soda," "Chile saltpeter," "Chilean nitrate," "Chilean nitrate of soda," "Arcadian," and other names.

Superphosphate.—As pointed out by Jacob and Shelton (*198*), the solid product obtained by treating natural phosphates with sulfuric acid originally was called superphosphate in the United States in conformance with the terminology originating in England. Other names for this product soon appeared here, however, among which were "dissolved bone," "acidulated rock," "dissolved phosphate," "dissolved bone phosphate," "superphosphate of lime," and "acid phosphate." At least as early as 1877 the term "acid phosphate" was used considerably in the South, not only by fertilizer manufacturers but also by State agricultural officials and others. The use of this term gradually spread through most of the country, and the term "superphosphate" was restricted chiefly to the products known as ammoniated superphosphate, double superphosphate, and bone superphosphate, the last term designating superphosphate made from bone.

The name "acid phosphate" was not, however, a fortunate one, for the word "acid" led some to believe, erroneously, that use of the material would increase soil acidity. To lessen this impression and in the interest of standardizing the nomenclature of the fertilizer industry, steps were initiated in 1927 to abandon the term "acid phosphate" in favor of "superphosphate" (*2, 3, 4, 5, 104, 170*), a change which was soon adopted throughout the country. As far as the writers know, the term "superphosphate," or its literally translated equivalent, has always been used in other countries.

Although the solid product obtained by treating natural phosphates with sulfuric acid often is designated simply as superphosphate, precise terminology requires its differentiation from other materials in the superphosphate category. Significations used for this purpose include the adjectives regular, standard, ordinary, and normal. The term "normal superphosphate" appears to be gaining in favor. As defined by the United States Bureau of the Census, normal superphosphate (prepared with sulfuric acid alone) contains not more than 22 percent of available phosphoric oxide; in the tabular material of this bulletin it refers to products containing 24 percent or less of available phosphoric oxide.

The product obtained by treating natural phosphates with phosphoric acid alone is designated as double superphosphate, triple superphosphate, or concentrated superphosphate.

According to Mehring (*135*) the term "double superphosphate," which is a literal translation of the name "doppelsuperphosphat" originally applied in Germany where the material was first made, refers to the fact that the product is manufactured in two stages, whereby phosphate rock is decomposed by sulfuric acid, or other means, to obtain phosphoric acid which is then reacted with additional phosphate rock. Since World War II the product has been sold under the registered trademark "Treble Superphosphate" by one company in the United States and under the name "triple superphosphate" by other companies. These two terms apparently allude to the fact that when they came into use the content of available P_2O_5 in the material was approximately three times that of the then current standard (16 percent of available P_2O_5) for ordinary, or normal, superphosphate. Use of the term "triple superphosphate," now common in the domestic trade, has been extended to some foreign countries.

The term "concentrated superphosphate" lacks specificity, since it has been used to designate not only the product made by treating natural phosphates with phosphoric acid alone but also all superphosphates of higher phosphoric oxide content than that of normal superphosphate. The Bureau of the Census (*286*) currently defines concentrated superphosphate as the product, containing 40 percent or more of available phosphoric oxide, made with phosphoric acid alone. The term also is applied similarly by the United States Tennessee Valley Authority (*325*) but it is not widely used in the trade. In the tabular material of this bulletin the term refers to products containing more than 24 percent of available phosphoric oxide.

The Bureau of the Census (*286*) defines enriched superphosphate as the class of products containing more than 22 percent and less than 40 percent of available phosphoric oxide which are made with mixtures of sulfuric and phosphoric acids. Substantial quantities of enriched superphosphate were not manufactured in the United States until after 1950. Combined monthly production figures for normal and enriched superphosphates were reported until August 1955. Since then the production of each has been given separately.

Wet-base goods.—The terms "wet-base goods," "wet-mixed base," and "wet-mixed base goods" usually refer to the products made by treating a mixture of phosphate rock, or bone, and nitrogenous organic material (wool waste, fur trimmings, leather scrap, hair, shoddy, feathers, etc.) with sulfuric acid. Potash materials are used sometimes.

ORGANIZATION OF THE DATA

The statistics assembled in this bulletin are chiefly by calendar-year periods, because this is the only basis on which longtime data are available for most if not all of the items. It should be noted, however, that the year ended June 30, or its component 6-month periods, gradually has gained favor, especially for the reporting of fertilizer consumption figures. In the annual Branch surveys of the consumption of fertilizers and plant nutrients, for example, the data are collected by 6-month periods, so that it is possible to compile the figures on the basis of either the calendar year or the year ended June 30. In previous publication of the results of these surveys (*140, 153, 154, 216, 217, 218, 220, 221, 222, 223, 224, 225*), most of the data have been reported only for the year ended June 30, while in this bulletin they are given chiefly for the calendar year. The tables that show Branch survey data by calendar years carry the notation "based on Branch surveys."

Although the quantitative data of this bulletin are given entirely in terms of the short ton (2,000 pounds) as designated simply by the word "ton," the original data sometimes were expressed in other units. For example, statistics of the production and exports of phosphate rock for the United States have been reported customarily in long tons, whereas the foreign trade in other fertilizer products has been expressed in pounds, short tons, or long tons. Statistics of the domestic consumption and production of fertilizers, agricultural liming materials, and soil amendments, except the production of phosphate rock, usually have been stated in short tons. Conversions of long tons and metric tons to short tons were made with the aid of the respective factors 1.12 and 1.10231.

Undocumented data in the tables are estimates made by the senior writer. Omission of a figure usually indicates not only a lack of published data but also the absence of a sound basis for making an estimate.

Except as indicated otherwise, statistics of the production of a commodity relate to its total production for all uses.

In many instances, especially for the consumption data, the statistics are given for the individual States and Territories grouped by regions. The regions and their units are: *New England*—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut; *Middle Atlantic*—New York, New Jersey, Pennsylvania, Delaware, District of Columbia, Maryland, West Virginia; *South Atlantic*—Virginia, North Carolina, South Carolina, Georgia, Florida; *East North Central*—Ohio, Indiana, Illinois, Michigan, Wisconsin; *West North Central*—Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas; *East South Central*—Kentucky, Tennessee, Alabama, Mississippi; *West South Central*—Arkansas, Louisiana, Oklahoma, Texas; *Mountain*—Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada; *Pacific*—Washington, Oregon, California; *Territories*—Territory of Hawaii, Puerto Rico, Alaska.

The data are assembled in 153 tables arranged in 13 groups dealing with the individual plant nutrients, or classes of nutrients, and their carriers and with other specific categories. The first 6 groups (tables 1–88, pp. 12–88) relate, respectively, to nitrogen and nitrogen materials; natural organic materials, which supply nitrogen as the principal plant nutrient; phosphoric oxide and phosphate materials; potash and potash materials; secondary nutrients and secondary-nutrient materials; and trace nutrients and trace-nutrient materials. The natural organic materials include both dried manures and farmyard manures. Although the trade in farmyard manures is small and they normally are not classed as commercial fertilizers, such manures are highly important local sources of plant nutrients in many parts of the country. The statistics of the nutrients and their various carriers comprise, in general, data on their production, foreign trade, and consumption, with the latter often given for the individual States and Territories. Other data include prices of the nutrients, capacities for their production, and their average rate of consumption per acre of harvested cropland.

The 13 tables (Nos. 89–101, pp. 89–101) dealing with mixed fertilizers include statistics of the number of plants and their rated annual capacities, production by types of mixtures and by States, materials used in the manufacture of mixed fertilizers, foreign trade, prices, primary nutrient content, and consumption by States and Territories, types, and grades.

Besides prices, foreign trade, primary-nutrient content, and consumption by States and Territories and kind of fertilizer, statistics for the category "All fertilizers" (tables 102–119, pp. 102–131) in-

clude expenditures for fertilizers, removal of nutrients in crops and their replacement as fertilizers and farm manures, consumption of fertilizers and nutrients on various crops and for nonfarm use, and rates of application of fertilizers per acre.

Statistics are given of the fertilizers and plant nutrients used in the agricultural conservation programs (tables 120–122, pp. 132–135), the fertilizer production of the United States Tennessee Valley Authority (table 123, p. 136), and the fertilizers and nutrients used in the Authority's test demonstration program (table 124, p. 136).

Data on the consumption of fertilizers—and usually of plant nutrients, also—by counties in certain years are shown for Alabama, Arkansas, Florida, Georgia, Kansas, Louisiana, Minnesota, Mississippi, Missouri, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Vermont (tables 125–140, pp. 137–151).

Statistics of the domestic movement of fertilizers include data on monthly shipments, annual tonnages of fertilizers and phosphate rock originated and terminated on class 1 railways, average freight rates, and waterborne traffic (tables 141–147, pp. 152–161).

Data on agricultural liming materials are given in the final group of tables (Nos. 148–153, pp. 162–166). Average prices paid by farmers, the consumption by States and kinds of materials, the quantities applied under the agricultural conservation programs, and the rate of consumption per acre of cropland are given.

TABLES

Nitrogen and Nitrogen Materials

TABLE 1.—*Chemical nitrogen: Number of plants and nitrogen-production capacity, 1914 and annually 1924–56*

Year [1]	Plants			Nitrogen-production capacity		
	By-product [2]	Synthetic [3]	Total	By-product [4]	Synthetic [3]	Total
	Number	*Number*	*Number*	*1,000 tons*	*1,000 tons*	*1,000 tons*
1914	37	0	37	46	0	46
1924	75	2	77	142	54	196
1925	74	3	77	148	55	203
1926	78	5	83	162	65	227
1927	79	7	86	178	66	244
1928	85	8	93	185	116	301
1929	87	9	96	188	212	400
1930	87	9	96	194	236	430
1931	86	10	96	200	261	461
1932	86	11	97	200	357	557
1933	83	10	93	200	347	547
1934	80	9	89	200	341	541
1935	80	8	88	200	341	541
1936	80	8	88	200	342	542
1937	81	8	89	200	359	559
1938	81	8	89	200	370	570
1939	80	8	88	200	375	575
1940	80	8	88	200	380	580
1941	81	9	90	202	390	592
1942	82	10	92	203	455	658
1943	83	13	96	205	797	1,002
1944	85	17	102	210	1,191	1,401
1945	84	18	102	217	1,327	1,544
1946	81	18	99	210	1,384	1,594
1947	80	18	98	214	1,394	1,608
1948	80	18	98	219	1,389	1,608
1949	80	18	98	216	1,389	1,605
1950	79	19	98	215	1,565	1,780
1951	80	20	100	200	1,593	1,793
1952	79	21	100	208	1,707	1,915
1953	80	22	102	217	1,756	1,973
1954	81	25	106	231	2,208	2,439
1955	82	35	117	244	2,920	3,164
1956 [5]	81	42	123	248	3,354	3,602

[1] Statistics given as of January 1 of each year.
[2] Communication from J. A. DeCarlo, U. S. Bureau of Mines. Does not include gas light retort plants.
[3] 1914–35 capacity data, U. S. Tariff Commission (*320*); other information from the U. S. Office for Agricultural War Relations, U. S. War Assets Corporation, U. S. Production and Marketing Administration, U. S. Commodity Stabilization Service, and F. Stapleton, U. S. Tariff Commission. Cope (*54*) gives details of individual plants.
[4] 1914–35, U. S. Tariff Commission (*320*); 1936–56, communications from J. A. DeCarlo, U. S. Bureau of Mines and F. Stapleton, U. S. Tariff Commission. From 1930 to 1940, 23 pounds of nitrogen were recovered per ton of coal carbonized, but since 1946 the average has been about 20 pounds.
[5] Preliminary.

TABLE 2.—*Chemical nitrogen: Total production, by source, 1910 and annually 1920–54* [1]

Calendar year	By-product plants	Synthetic			Total
		Private plants [2]	Government plants [3]	Total	
	Tons	*Tons*	*Tons*	*Tons*	*Tons*
1910	22,901	0	0	0	22,901
1920	102,401	270	0	270	102,671
1921	73,501	200	0	200	73,701
1922	97,747	740	0	740	98,487
1923	123,500	5,900	0	5,900	129,400
1924	118,532	11,110	0	11,110	129,642
1925	138,063	13,050	0	13,050	151,113
1926	148,367	18,000	0	18,000	166,367
1927	153,622	24,000	0	24,000	177,622
1928	169,349	50,500	0	50,500	219,849
1929	182,979	135,900	0	135,900	318,879
1930	161,904	117,450	0	117,450	279,354
1931	121,042	97,450	0	97,450	218,492
1932	76,338	103,380	0	103,380	179,718
1933	93,169	137,675	0	137,675	230,844
1934	106,701	150,000	0	150,000	256,701
1935	116,250	174,110	0	174,110	290,360
1936	143,808	215,000	0	215,000	358,808
1937	155,591	262,893	0	262,893	418,484
1938	107,077	275,415	0	275,415	382,492
1939	139,903	283,932	0	283,932	423,835
1940	171,414	294,276	0	294,276	465,690
1941	179,375	425,796	2,466	428,262	607,637
1942	185,918	433,126	151,248	589,374	775,292
1943	184,925	416,754	485,802	902,556	1,087,481
1944	194,650	391,272	630,474	1,021,746	1,216,396
1945	180,192	378,942	531,834	910,776	1,099,968
1946	153,156	541,698	250,710	792,408	945,564
1947	187,885	859,812	316,470	1,176,282	1,364,167
1948	191,468	826,932	305,784	1,132,716	1,324,184
1949	176,139	[4] 1,065,009	----------	[4] 1,065,009	[4] 1,241,148
1950	192,099	[4] 1,288,463	----------	[4] 1,288,463	[4] 1,480,562
1951	207,313	[4] 1,461,963	----------	[4] 1,461,963	[4] 1,669,276
1952	185,034	[4] 1,688,233	----------	[4] 1,688,233	[4] 1,873,267
1953	215,575	[4] 1,882,115	----------	[4] 1,882,115	[4] 2,097,690
1954	182,913	[4] 2,237,383	----------	[4] 2,237,383	[4] 2,420,296

[1] 1910–22, Ernst and Sherman (*69*); 1923, Howard (*79*); 1924–34, U. S. Tariff Commission (*320*); 1935–39, communication from F. Stapleton, U. S. Tariff Commission; 1940–48, supplied by W. C. Cope, U. S. Production and Marketing Administration; 1949–54, byproduct computed from coke-oven production of ammonia liquor and ammonium sulfate, U. S. Bureau of Mines (*271, 272*), and synthetic, U. S. Bureau of the Census (*285*).

[2] Privately owned plants and Government plants leased for private operation.

[3] U. S. Tennessee Valley Authority, U. S. Defense Production Administration, and ordnance plants operated for the Government.

[4] Includes production of U. S. Tennessee Valley Authority and other Government-owned plants operated for the Government.

TABLE 3.—*Nitrogen: Foreign trade, decennial years 1880–1920 and annually 1920–54* [1]

Calendar year	Imports			Exports [2]		
	Fertilizer [3]	Industrial	Total	Fertilizer	Industrial	Total
	Tons N	*Tons N*	*Tons N*	*Tons N*	*Tons N*	*Tons N*
1880	----------	----------	6,830	----------	----------	----------
1890	----------	----------	16,513	----------	----------	----------
1900	----------	----------	39,041	----------	----------	----------
1910	----------	----------	112,039	----------	----------	119
1920	248,812	18,088	266,900	20,667	1,084	21,751
1921	70,776	14,366	85,142	26,306	4,200	30,506
1922	110,587	9,031	119,618	37,897	1,492	39,389
1923	179,020	10,980	190,000	41,741	2,121	43,862
1924	193,917	7,951	201,868	33,310	2,444	35,754
1925	235,866	9,306	245,172	33,431	2,536	35,967
1926	201,717	8,965	210,682	46,230	2,388	48,618
1927	190,022	9,250	199,272	34,469	1,977	36,446
1928	267,578	9,924	277,502	25,895	2,970	28,865
1929	238,782	9,857	248,639	39,019	2,891	41,910
1930	179,637	6,406	186,043	24,951	2,248	27,199
1931	102,737	5,076	107,813	32,096	1,618	33,714
1932	110,553	4,356	114,909	33,902	1,085	34,987
1933	143,926	5,357	149,283	21,671	1,042	22,713
1934	144,198	4,846	149,044	36,176	1,254	37,430
1935	149,531	5,524	155,055	45,356	1,623	46,979
1936	197,895	6,028	203,923	50,447	2,958	53,405
1937	217,655	7,526	225,181	42,173	3,770	45,943
1938	209,867	5,477	215,344	37,231	3,922	41,153
1939	214,810	7,769	222,579	33,552	5,891	39,443
1940	188,886	7,036	195,922	57,126	12,914	70,040
1941	165,305	11,835	177,141	34,531	19,992	54,523
1942	188,744	64,051	252,795	15,521	23,976	39,497
1943	207,622	32,117	239,739	[4] 27,726	42,418	70,144
1944	215,420	12,900	228,320	[4] 11,918	32,043	43,961
1945	253,880	13,677	267,557	[4] 28,071	16,807	44,878
1946	203,142	10,404	213,546	[5] 85,731	[5] 8,181	93,912
1947	202,804	10,711	213,515	[7] 258,254	[5] 9,952	268,206
1948	224,254	9,171	233,425	[8] 270,443	[5] 6,801	277,244
1949	233,471	10,220	243,691	319,531	[5] 9,144	328,675
1950	261,570	15,127	276,697	235,729	[4] 9,653	245,382
1951	337,549	19,314	356,863	72,177	[4] 7,284	79,461
1952	356,794	17,909	374,703	57,979	[4] 15,226	73,205
1953	498,602	18,155	516,757	35,579	[4] 14,925	50,504
1954	411,458	15,235	430,555	71,334	[4] 35,358	106,692

[1] 1924–41, U. S. Tariff Commission (*320, 321, 322*), unless otherwise noted. Other years computed from tonnages reported by the U. S. Bureau of the Census (*230, 254, 287, 288*) and the average nitrogen contents of each material for the year.

[2] 1925–54 from table 4.

[3] Includes reexports of foreign merchandise and lend-lease and Army shipments to occupied countries. The latter are not available as separate items after 1948.

[4] Revised.

[5] Includes 36,832 tons nitrogen shipped by the Army to occupied areas.

[6] Not comparable with earlier years. No data available on explosives 1949 and 1950 nor on certain miscellaneous items 1946–54.

[7] Includes 174,866 tons nitrogen shipped by the Army to occupied areas.

[8] Includes 212,551 tons nitrogen shipped by the Army to occupied areas.

TABLE 1. *Nitrogen: Imports, by type and kind of material, 1925–54*[1]

Calendar year	Chemical										Natural organic								Grand total
	Ammonium nitrate and mixtures[2]	Ammonium phosphates[3]	Ammonium sulfate[4]	Calcium cyanamide[5]	Calcium nitrate[6]	Potassium nitrate	Sodium nitrate[7]	Mixed fertilizers[8]	Other chemical	Total	Bones and bone meal[9]	Dried blood[10]	Castor pomace[11]	Fish scrap[12]	Guano and dried manure[13]	Tankage[14]	Other natural organic[15]	Total	
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1925			5 482	24 136	1 132	1 223	191 328		140	226 441	849	1 467			1 365	2 104	3 640	9 425	235 866
1926	1 730		1 085	22 109	1 762	1 371	159 745		612	192 264	1 588	1 643			915	1 720	3 587	9 453	201 717
1927	13 101		3 957	26 939	3 193	627	130 827		1 239	180 273	1 856	1 727			1 828	1 657	2 681	9 749	190 022
1928	24 436		8 679	33 443	4 050	1 400	180 470	599	1 392	254 478	2 803	1 370			1 770	3 042	4 114	13 100	267 578
1929	4 742		1 396	45 402	5 300	1 864	162 570	787	1 171	226 432	1 872	1 107			1 164	1 455	3 452	12 350	238 782
1930	2 371		8 067	35 610	7 616	1 864	101 892	1 693	5 034	164 147	2 035	1 632		1 202	3 479	1 805	5 147	15 490	179 637
1931	930		26 368	12 639	1 996	2 142	98 670	1 687	3 625	151 025	1 665	1 272		3 460	1 286	1 573	2 454	11 710	162 737
1932	[16]		70 903	15 111	1 191	2 485	9 037	536	1 939	101 502	3 024	538		1 962	2 026	1 479	2 022	9 051	110 553
1933	[16]	788	81 011	15 731	3 005	3 726	22 018	300	3 111	129 720	969	919		2 387	1 730	1 751	4 450	13 206	143 926
1934	[16]	1 895	42 753	20 378	5 538	4 603	52 400	319	2 709	130 765	542	537	1 009	3 207	1 498	941	5 699	13 133	144 198
1935	9 182	2 059	18 241	21 697	1 618	5 883	70 030	393	2 070	130 573	625	1 209	1 116	2 307	1 631	2 160	3 620	12 068	149 531
1936	10 513	4 279	25 529	27 800	6 250	9 334	84 625	816	1 335	180 550	789	1 151	1 118	3 935	1 788	3 371	3 593	17 345	197 895
1937	13 284	4 557	19 206	30 110	6 891	11 191	112 286	1 389	3 952	203 166	1 270	1 766		845 2 211	1 027	1 653	6 317	14 489	217 655
1938	14 174	5 491	28 010	20 351	1 827	8 460	103 422	3 069	4 355	201 102	666	823		825 627	1 192	689	3 943	8 765	209 867
1939	14 735	7 031	25 386	32 697	3 300	9 284	108 307	2 321	2 958	206 016	9	1 984	1 278	1 082	509	848	3 084	8 794	214 810
1940	4 494	8 691	9 790	29 165	237	8 202	119 061	1 605	3 450	183 698	[17]	1 675	353	621	158	878	1 503	5 188	188 886
1941	0	4 287	7 270	31 222	0	5 043	97 691	1 812	9 998	157 353	[18]	2 441	2	119	1 297	922	3 172	7 953	165 306
1942	0	6 598	10 988	18 900	0	2 084	143 864	2 033	2 674	187 141	[19]	534	2	34	250	152	631	1 603	188 744
1943	20 509	6 290	20 764	26 760	0	2 926	122 548	2 812	1 760	204 459	[20]	651	5	20	775	1 320	383	3 153	207 622
1944	37 066	13 118	21 555	21 702	1	1 302	111 791	2 877	731	211 266	[21]	2 279	3	84	443	1 020	326	4 154	215 420
1945	43 136	13 264	24 729	30 015	0	0	136 832	3 443	742	252 191	[22]	355	21	82	351	843	37	1 689	253 880
1946	39 229	13 029	21 123	31 739	465	651	87 080	4 175	1 475	201 966	[23]	76	19	121	358	118	184	1 476	203 442
1947	33 105	15 042	23 792	32 752	1 249	370	89 601	3 842	1 482	201 235	[24]	530	6	192	30	673	138	1 569	202 804
1948	33 875	15 477	22 021	24 815	1 377	0	116 075	3 821	5 003	222 487	[25]	433	0	511	3	648	202	1 787	224 254
1949	46 403	18 057	21 944	24 684	5 451	1 007	108 762	3 700	1 197	231 265	[26]	426	284	504	0	555	437	2 206	233 471
1950	75 103	15 250	29 855	20 815	6 259	3 024	99 124	4 267	4 913	258 310	[27]	282	543	818	10	487	1 120	3 260	261 570
1951	109 798	19 300	44 959	11 328	8 640	2 058	116 883	2 117	13 664	331 738	[28]	495	940	2 908	21	244	1 203	5 811	337 549
1952	124 673	19 004	49 517	20 190	5 565	5 831	108 728	3 062	14 159	351 089	[29]	317	877	3 187	9	270	1 015	5 705	356 794
1953	195 413	23 809	108 982	17 512	9 559	3 956	91 588	2 807	11 059	494 665	[30]	512	728	1 839	9	62	787	3 937	498 602
1954	135 584	22 979	62 526	17 685	10 949	2 386	115 921	836	37 763	406 552	[31]	808	314	2 781	22	165	816	4 906	411 458

[1] The tonnages of materials reported by the U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*250, 258*) for 1925–54 and by the U. S. Office of Foreign Agricultural Relations (*309*) for 1950–51 were converted to tons nitrogen by multiplying by the approximate average nitrogen percentages. Lack of data indicates that the material was not separately classified; if any imports were received, they are included in some other category.

[2] 1926–31, ammonium sulfate-nitrate with a nitrogen content of 26 percent; 1935–40, Cal-Nitro, average of 2 grades 20.3 percent nitrogen; 1943–54, includes ammonium nitrate with a nitrogen content varying from 32.5 percent in 1943 to 33.5 in 1954.

[3] Includes ammonium phosphate-sulfate (16–20 grades). Shipments prior to Jan. 1, 1933 included with "Other chemical". The nitrogen content gradually decreased from 17 percent in 1933 to 14.3 percent in 1954.

[4] The nitrogen content gradually increased from 20.6 percent in 1925 to 20.8 percent in 1954.

[5] The nitrogen content decreased from 22.0 percent in 1925 to 21.3 percent in 1954.

[6] 1925 and 1926, 13 percent nitrogen; 1927–40, 15.5 percent; 1946–54, 14.1 percent.

[7] Includes crude potassium nitrate (13.2 percent nitrogen) and nitrate of soda-potash (14.8 percent nitrogen).

[8] 1925–29, 15.6 percent nitrogen; 1930–42, 16.0 percent; 1943–54, 16.1 percent.

[9] Appropriate average annual nitrogen contents were used for shipments from each country. Does not include ammonium phosphates.

[10] Includes urea (46 percent nitrogen), Calurea (34 percent nitrogen), and miscellaneous materials averaging 14 percent nitrogen.

[11] Raw bones and raw bonemeal, 3.8 percent nitrogen; steamed bonemeal, 2.2 percent nitrogen.

[12] 12.9 percent nitrogen.

[13] 5.8 percent nitrogen.

[14] 9.7 percent nitrogen.

[15] Guano, 8 percent nitrogen; dried manure, 2 percent nitrogen. The latter were first reported separately in 1929.

[16] 8 percent nitrogen.

[17] Includes hoof meal, process tankage, hempseed meal, denatured cottonseed meal, sesameseed meal, rubberseed meal, and many other materials. The nitrogen content varies from 5 to 15 percent and was estimated from the kind of materials and the tonnages reported from each country.

[18] Included with "Other chemical."

[19] Classified as feed.

TABLE 5.—*Nitrogen: Consumption of chemical and natural organic nitrogen, decennial years 1850–1930 and annually 1930–51* [1]

Calendar year	Chemical nitrogen		Natural organic nitrogen		Total nitrogen
	1,000 tons	*Percent of total N*	*1,000 tons*	*Percent of total N*	*1,000 tons*
1850	0.2	6.67	2.8	93.33	3
1860	.7	7.00	9.3	93.00	10
1870	1.2	8.57	12.8	91.43	14
1880	2.5	13.16	16.5	86.84	19
1890	4	10.53	34	89.47	38
1900	7	11.29	55	88.71	62
1910	63	43.15	83	56.85	146
1920	151	66.23	77	33.77	228
1930	317	83.80	61	16.14	378
1931	241	80.07	60	19.93	301
1932	160	74.77	54	25.23	214
1933	188	78.33	52	21.67	240
1934	223	81.10	52	18.91	275
1935	261	83.65	51	16.35	312
1936	292	83.43	58	16.57	350
1937	361	87.62	51	12.38	412
1938	335	87.24	49	12.76	384
1939	350	87.94	48	12.06	398
1940	371	88.54	48	11.46	419
1941	410	89.52	48	10.48	458
1942	352.8	88.51	45.8	11.49	398.6
1943	473.7	93.12	35.0	6.88	508.7
1944	601.6	94.80	33.0	5.20	634.6
1945	609.4	95.09	31.5	4.91	640.9
1946	727.5	95.82	31.7	4.18	759.2
1947	803.8	96.18	31.9	3.82	835.7
1948	809.3	96.22	32.0	3.80	841.3
1949	877.2	96.24	34.3	3.76	911.5
1950	1,087.9	96.62	38.1	3.38	1,126.0
1951	1,228.5	97.05	37.4	2.95	1,265.9

[1] Includes the Territories and Government distribution. 1850–1941, estimated from various sources of information; 1942–51, computed from Branch survey tonnages and the averages of analyses reported by State fertilizer control officials.

TABLE 6.—*Nitrogen: Consumption by uses, years ended June 30, 1939–54* [1]

Year ended June 30	In mixed fertilizers	As separate material	Total
	Tons N	*Tons N*	*Tons N*
1939	204,800	179,636	384,436
1940	206,000	206,000	412,000
1941	221,000	240,600	461,600
1942	248,000	172,100	420,100
1943	236,618	203,400	440,024
1944	334,733	282,247	616,982
1945	351,782	275,516	630,298
1946	400,842	300,228	701,070
1947	467,003	315,685	783,588
1948	493,281	363,438	856,719
1949	512,474	407,472	919,946
1950	495,360	510,164	1,005,524
1951	583,959	653,018	1,236,977
1952	648,223	773,937	1,422,160
1953	728,095	908,961	1,637,056
1954	778,099	1,069,317	1,847,416

[1] Includes the Territories and Government distribution. 1939, Mehring, Deming, and Willett (*146*); 1940–42, estimated; 1943–54, Branch surveys.

TABLE 7.—*Nitrogen: Consumption, by regions and States and Territories, 1930–53* [1]

Calendar year	New England							Middle Atlantic							
	Maine	N. H.	Vt.	Mass.	R. I.	Conn.	Total	N. Y.	N. J.	Pa.	Del.	D. C.	Md.	W. Va.	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	9,430	424	527	3,294	322	3,250	17,247	10,800	5,100	6,458	950	50	4,358	868	28,584
1931	8,165	411	493	3,210	290	3,255	16,824	9,101	4,835	5,893	862	45	4,020	800	25,562
1932	7,704	524	509	3,347	309	2,569	14,962	7,854	5,327	5,631	708	40	3,215	826	23,601
1933	6,952	614	347	3,063	400	2,416	13,792	8,752	5,406	5,547	652	50	3,582	1,012	25,001
1934	7,383	765	577	3,376	594	2,593	15,288	9,246	6,351	5,949	807	55	3,954	1,284	27,646
1935	7,000	864	664	3,571	510	2,703	15,312	11,970	7,022	7,111	907	60	4,484	1,185	33,039
1936	7,410	937	601	3,656	560	2,856	15,990	13,345	7,233	7,831	975	65	4,681	1,375	35,705
1937	7,080	770	690	4,159	616	3,698	17,913	13,300	8,131	8,366	1,202	70	5,328	1,302	37,789
1938	8,120	603	576	3,874	647	2,912	16,792	11,651	7,556	8,387	1,102	69	4,870	1,230	34,871
1939	7,803	530	518	3,544	609	3,316	16,320	10,238	7,839	8,578	1,122	83	4,904	1,243	34,007
1940	8,104	549	618	3,640	583	3,363	16,957	11,615	8,123	8,518	1,132	83	5,258	1,415	36,144
1941	9,120	744	696	3,789	628	3,406	18,383	12,914	8,593	9,352	1,111	92	5,840	1,786	39,694
1942	8,640	847	756	3,924	653	3,452	18,272	13,520	9,391	7,831	894	86	5,171	1,301	38,194
1943	10,902	803	788	3,443	607	3,610	20,213	15,055	8,631	10,063	1,128	64	5,530	1,376	41,847
1944	[2]13,004	[2]1,145	[2]881	[2]4,817	[2]756	[2]4,058	[2]25,921	[2]19,550	[2]11,206	[2]13,753	[2]1,558	[2]78	[2]7,430	[2]1,770	[2]55,345
1945	14,586	1,167	1,030	4,742	853	4,712	27,090	21,638	11,592	15,141	1,609	66	8,145	1,870	60,061
1946	16,213	1,156	1,090	4,792	841	4,467	27,559	22,106	12,220	17,383	1,975	96	8,755	2,040	64,584
1947	14,337	934	1,090	4,357	780	4,093	25,591	21,170	11,871	17,380	1,787	108	9,439	2,338	64,102
1948	14,468	1,025	1,015	4,605	909	4,717	26,739	22,975	12,702	18,022	1,922	80	8,048	2,433	66,782
1949	13,565	730	1,046	4,348	938	4,382	25,018	23,950	12,587	19,699	1,876	105	8,655	2,207	69,079
1950	11,360	882	1,069	4,790	842	4,879	23,822	25,164	12,107	20,929	2,163	117	8,916	2,341	71,737
1951	10,058	778	1,355	4,573	885	4,340	21,989	26,852	13,042	22,660	2,774	120	9,968	2,359	77,775
1952	13,248	743	1,212	4,707	851	4,561	25,332	32,050	15,237	25,844	3,980	142	12,428	2,607	92,288
1953	12,942	935	1,334	4,810	896	4,763	25,680	34,265	15,790	30,255	4,930	163	13,718	2,954	102,105

See footnotes at end of table, p. 17.

TABLE 7.—*Nitrogen: Consumption, by regions and States and Territories, 1930–53* —Continued

Calendar year	South Atlantic						East North Central					
	Va.	N. C.	S. C.	Ga.	Fla.	Total	Ohio	Ind.	Ill.	Mich.	Wis.	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	15,904	62,580	39,897	44,623	28,888	191,892	6,004	4,337	865	3,800	1,122	16,128
1931	13,255	50,133	31,521	31,493	23,845	150,247	4,734	4,277	1,117	2,913	1,273	14,314
1932	9,237	31,321	19,819	15,759	21,135	97,271	3,342	1,849	518	2,377	763	8,849
1933	10,273	33,882	25,063	17,817	20,018	107,053	4,078	2,163	594	2,200	533	9,568
1934	11,357	37,969	25,507	23,015	23,394	121,602	4,748	2,361	740	2,066	724	10,639
1935	13,627	43,504	28,837	27,785	23,003	136,756	6,590	4,055	980	2,469	926	14,990
1936	14,300	46,518	31,949	31,488	27,166	151,421	6,844	5,336	958	3,042	946	17,126
1937	16,736	50,188	40,102	42,452	29,549	179,027	8,077	4,969	1,122	3,165	1,093	18,426
1938	15,397	48,041	35,031	38,416	27,774	164,659	7,619	3,889	1,095	3,185	1,244	17,032
1939	15,971	48,613	36,867	38,060	26,893	166,404	8,225	3,665	1,102	3,562	1,053	17,667
1940	15,251	48,453	38,329	39,509	26,898	168,440	8,901	5,354	1,834	4,197	1,548	21,834
1941	15,800	47,567	40,400	41,020	31,062	176,764	10,092	5,741	2,222	4,715	1,709	24,479
1942	11,553	52,206	36,123	36,932	27,175	163,989	7,377	3,958	1,651	3,769	2,015	18,770
1943	16,817	61,118	45,883	47,685	32,751	204,254	9,755	6,304	2,119	5,007	2,254	25,520
1944	[1]21,153	[1]68,871	[1]48,941	[1]56,577	[1]35,172	[1]230,714	[1]14,090	[1]8,425	[1]3,691	[1]8,299	[1]5,950	[1]41,355
1945	20,532	73,195	47,120	52,385	37,871	231,103	17,760	10,434	4,725	8,536	8,629	50,084
1946	23,419	75,975	48,257	54,385	42,404	244,440	18,417	13,192	8,051	9,866	8,250	57,776
1947	23,942	78,043	54,641	57,940	34,301	248,867	20,603	16,282	12,217	11,356	12,267	72,725
1948	25,348	81,109	52,187	61,031	32,258	251,933	23,211	20,184	14,827	10,432	13,201	81,855
1949	26,211	91,366	54,189	60,286	38,263	270,315	24,624	20,890	14,191	12,421	9,875	82,001
1950	28,590	98,881	58,885	62,979	44,943	294,287	29,222	30,669	19,505	14,665	11,648	105,709
1951	30,394	98,467	58,365	69,086	55,464	311,776	32,282	39,996	33,556	17,097	12,165	135,096
1952	31,320	109,757	62,114	76,714	61,727	344,632	42,799	55,423	50,965	23,575	13,671	186,433
1953	35,733	108,708	63,377	79,029	68,518	356,265	49,072	68,454	78,644	28,060	17,831	241,801

Calendar year	West North Central							East South Central				
	Minn.	Iowa	Mo.	N. Dak.	S. Dak.	Nebr.	Kans.	Total	Ky.	Tenn.	Ala.	Miss.	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	308	459	734	0	0	5	93	1,599	3,226	2,655	29,135	18,571	53,587
1931	408	462	700	0	0	2	42	1,614	2,871	2,232	20,180	9,378	34,661
1932	223	200	367	0	0	1	19	810	1,408	1,140	8,565	4,826	15,939
1933	173	50	404	0	0	0	27	654	1,398	1,506	13,879	6,877	23,660
1934	174	58	925	1	0	13	98	1,269	1,413	1,757	19,047	11,435	33,652
1935	221	70	1,123	2	1	24	124	1,565	1,891	2,218	21,542	16,030	41,481
1936	231	106	1,619	2	0	0	164	2,122	1,922	2,933	23,909	20,724	49,488
1937	276	146	1,402	4	2	20	168	2,017	2,459	3,674	33,351	25,728	65,212
1938	302	182	1,130	7	2	38	100	1,830	2,749	3,464	33,188	22,910	62,311
1939	355	204	1,003	6	1	17	170	1,816	2,244	3,695	34,650	27,710	68,299
1940	449	263	1,062	14	3	20	160	1,971	2,124	4,375	33,233	31,197	70,929
1941	391	370	1,091	21	5	18	168	2,064	2,374	4,569	30,126	37,077	80,146
1942	638	487	805	24	6	24	101	2,085	2,782	5,229	30,135	33,659	71,805
1943	705	478	1,099	25	5	29	138	2,479	2,997	7,943	34,763	51,225	96,928
1944	[1]1,250	[1]1,100	[1]1,867	[1]54	2	[1]24	[1]176	[1]4,539	[1]6,975	[1]11,764	[1]46,031	51,474	[1]116,244
1945	1,060	1,610	2,540	132	6	385	341	6,083	8,512	11,524	43,868	38,492	102,396
1946	3,005	5,422	5,087	270	124	1,557	1,295	16,830	11,674	15,425	46,891	53,456	127,346
1947	5,235	9,954	10,536	516	293	3,642	3,764	33,940	13,901	17,392	50,148	65,395	146,836
1948	6,076	12,712	11,619	523	252	4,201	3,898	39,381	14,445	16,946	55,585	72,880	159,865
1949	5,070	14,193	13,390	570	333	5,931	8,413	47,918	17,248	18,330	56,725	82,364	174,667
1950	6,758	15,051	22,187	562	413	10,674	14,193	69,838	21,321	29,291	64,090	93,864	208,566
1951	8,102	26,173	31,415	774	807	14,131	17,191	97,593	27,805	30,114	71,574	86,933	216,426
1952	10,552	29,262	48,831	1,472	896	20,660	28,829	140,502	29,233	43,680	78,426	112,180	263,519
1953	15,393	56,029	58,241	2,161	2,555	36,507	28,103	198,989	28,923	39,138	75,498	96,382	239,941

See footnotes at end of table, p. 17.

TABLE 7.—*Nitrogen: Consumption, by regions and States and Territories, 1930–53* [1]—Continued

Calendar year	West South Central					Mountain								
	Ark.	La.	Okla.	Tex.	Total	Mont.	Idaho	Wyo.	Colo.	N. Mex.	Ariz.	Utah	Nev.	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	3,012	12,342	232	5,425	21,011	1	15	0	28	10	276	0	4	334
1931	3,018	6,635	249	2,584	12,486	1	7	2	30	6	145	32	10	202
1932	610	3,832	105	1,166	5,722	0	11	3	39	5	138	18	14	228
1933	1,153	5,106	73	1,390	7,716	1	18	4	23	12	103	13	19	193
1934	2,660	6,909	185	2,204	12,018	2	18	10	44	22	138	16	24	274
1935	2,695	7,597	255	3,127	13,674	24	45	3	14	46	254	4	18	408
1936	3,376	11,067	226	3,284	17,953	26	39	6	10	77	320	16	20	511
1937	5,210	13,896	215	4,425	23,755	75	84	22	53	97	1,313	42	20	1,706
1938	5,044	12,799	278	4,237	22,358	90	63	20	259	69	1,118	50	20	1,689
1939	4,802	13,481	203	4,833	23,469	75	7	0	108	73	743	23	10	1,099
1940	8,707	12,745	167	6,525	28,144	56	4	0	260	80	663	31	10	1,104
1941	9,811	15,579	279	7,023	32,692	45	4	0	203	132	1,117	28	10	1,539
1942	7,111	12,958	350	6,701	27,120	50	342	0	248	89	1,220	40	6	1,995
1943	10,953	14,663	320	8,076	34,012	32	505	4	277	68	2,164	148	5	3,203
1944	[2] 12,426	[2] 10,333	[2] 624	[2] 11,888	[2] 44,270	[2] 86	[2] 950	[2] 9	[2] 818	[2] 37	[2] 2,618	[2] 388	[2] 25	[2] 4,931
1945	8,920	17,036	602	15,031	41,589	207	1,563	9	941	335	3,035	281	39	6,410
1946	18,582	21,593	1,077	19,933	61,185	468	2,576	53	2,327	747	4,966	816	21	11,974
1947	20,098	24,958	1,665	20,186	66,907	521	2,742	181	1,787	673	7,803	1,513	25	15,245
1948	23,208	23,649	2,521	19,553	68,931	571	2,684	246	1,898	893	6,931	1,075	36	14,334
1949	25,731	23,229	3,114	21,042	73,116	309	2,261	146	2,569	2,106	5,897	960	20	14,277
1950	36,705	33,403	4,874	30,504	105,486	890	3,882	291	4,342	2,251	14,303	3,581	59	29,659
1951	37,053	38,038	6,058	41,586	123,335	2,079	3,578	187	6,800	2,361	26,279	3,695	260	45,239
1952	42,664	43,337	9,388	53,235	148,624	2,295	8,334	269	6,665	2,181	21,640	3,518	240	45,142
1953	40,534	41,392	9,421	60,423	151,770	3,354	11,251	1,110	5,607	4,390	31,218	5,144	426	62,500

Calendar year	Pacific					Territories			Continental United States	United States and Territories
	Wash.	Oreg.	Calif.	Total	Hawaii	Puerto Rico	Alaska	Total		
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	1,100	639	16,038	18,077	16,879	12,355	3	29,237	349,050	378,287
1931	896	562	14,418	15,876	17,533	11,465	5	29,003	271,876	300,879
1932	740	567	15,174	16,487	16,756	12,914	5	29,675	183,929	213,604
1933	834	569	14,268	15,671	20,607	16,282	4	36,893	203,308	240,201
1934	1,096	572	18,103	19,771	18,900	14,304	6	33,210	242,159	275,369
1935	1,155	693	21,122	22,970	18,620	13,061	6	31,687	280,195	311,882
1936	1,561	858	25,209	27,428	16,520	15,991	7	32,518	317,944	350,462
1937	1,652	1,000	28,587	31,239	17,343	17,125	17	34,485	377,084	411,569
1938	1,512	1,200	25,857	28,569	17,568	16,377	13	33,960	350,111	384,071
1939	1,406	1,636	29,260	32,302	18,009	18,884	10	36,894	361,323	398,217
1940	1,954	1,873	29,194	33,020	17,043	23,597	9	40,559	378,543	419,102
1941	1,932	1,850	38,882	42,664	18,125	21,441	9	39,575	418,485	458,060
1942	3,755	1,852	26,802	32,409	14,315	9,609	14	23,938	374,639	398,577
1943	2,833	2,223	46,294	51,350	13,714	14,503	19	28,236	480,415	508,651
1944	[2] 5,635	[2] 4,292	[2] 63,188	[2] 73,025	[2] 12,398	[2] 25,808	14	[2] 38,220	[2] 596,344	[2] 634,564
1945	5,869	3,776	67,449	77,094	15,000	23,394	12	38,406	602,516	640,922
1946	8,415	8,654	94,918	111,987	15,563	19,914	22	35,499	723,681	759,180
1947	7,048	8,213	105,307	120,568	14,929	25,978	25	40,932	794,781	835,713
1948	5,841	6,178	76,302	88,321	16,264	26,883	45	43,192	798,141	841,333
1949	6,495	8,202	97,422	112,119	18,054	24,882	56	42,992	868,510	911,502
1950	10,114	10,681	129,464	150,259	20,475	40,210	0	60,685	1,065,363	1,126,048
1951	14,039	16,771	140,635	171,445	18,032	47,148	60	65,240	1,200,674	1,265,914
1952	20,252	19,856	149,225	180,333	18,293	30,882	65	49,240	1,435,805	1,485,045
1953	28,124	24,321	160,964	213,349	20,428	34,910	74	55,412	1,592,460	1,647,872

[1] 1940–44, Mehring, Wallace, and Drain (*168*)—adjusted to include consumption in Alaska; other years, computed from tonnages of all fertilizers given in table 106 and the weighted average composition of fertilizers consumed in the State involved.

[2] Revised.

TABLE S.—*Nitrogen: Average rate of consumption per acre of harvested cropland, by regions and States, years ended June 30, 1939 and 1943–51* [1]

State and region	1939	1943	1944	1945	1946	1947	1948	1949	1950	1951
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Maine	12.70	16.82	21.74	23.59	24.82	22.26	24.93	22.33	23.92	19.41
New Hampshire	3.94	4.41	5.78	5.55	5.32	4.63	5.11	3.86	4.58	4.73
Vermont	.96	1.42	1.54	1.73	1.80	1.98	1.66	1.86	2.08	2.63
Massachusetts	15.55	15.52	19.93	18.87	19.40	18.46	18.96	18.70	21.10	21.75
Rhode Island	21.72	22.57	26.95	29.93	28.17	28.74	32.11	34.52	37.09	39.07
Connecticut	17.15	18.29	22.63	22.26	22.31	20.90	22.65	23.39	25.87	26.94
New England	9.19	11.15	14.14	14.18	14.60	13.45	14.56	13.71	14.80	13.77
New York	3.06	6.04	5.46	6.42	6.33	6.62	6.85	7.21	7.89	8.82
New Jersey	20.11	19.47	25.88	26.34	26.05	27.36	30.22	33.03	27.31	31.29
Pennsylvania	2.74	2.67	4.11	4.66	5.14	5.68	5.86	6.35	7.08	7.51
Delaware	6.82	5.20	7.36	7.74	8.98	8.82	9.24	9.46	10.00	12.14
Maryland	6.05	5.65	7.73	9.44	10.00	10.86	10.59	10.39	11.45	12.09
West Virginia	1.62	1.63	2.22	2.41	2.81	3.16	3.29	3.06	3.45	3.72
Middle Atlantic	3.95	5.05	5.95	6.76	7.00	7.50	7.78	8.24	8.63	9.52
Virginia	8.07	6.35	9.38	10.49	11.70	11.93	13.13	14.30	15.04	17.13
North Carolina	14.97	16.37	21.04	22.80	22.94	24.34	25.84	29.18	30.60	32.11
South Carolina	14.70	15.27	21.60	22.16	20.68	20.76	26.97	26.25	26.46	29.88
Georgia	8.46	5.64	14.81	13.88	13.87	14.93	17.08	16.98	18.63	20.60
Florida	32.18	35.47	42.79	45.66	48.50	48.12	43.23	43.41	55.68	68.98
South Atlantic	12.63	12.18	18.66	19.34	19.62	20.32	22.34	23.34	25.48	26.45
Ohio	1.87	1.21	2.30	3.18	3.37	3.81	4.11	4.52	5.18	5.80
Indiana	.72	.83	1.47	1.69	2.40	2.73	3.48	3.64	4.76	6.72
Illinois	.12	.19	.31	.42	.66	1.07	1.34	1.59	1.57	2.62
Michigan	.92	1.07	1.62	1.92	2.22	2.50	2.53	2.84	3.40	3.86
Wisconsin	.21	.44	.93	1.36	1.59	2.01	2.58	2.36	2.09	2.36
East North Central	.63	.65	1.19	1.51	1.82	2.20	2.59	2.78	3.11	4.05
Minnesota	.04	.06	.13	.16	.28	.50	.59	.06	.60	.75
Iowa	.02	.03	.09	.12	.27	.67	1.01	1.46	1.22	1.86
Missouri	.17	.11	.24	.39	.60	1.34	1.64	2.05	2.94	4.77
North Dakota	.0007	.002	.002	.008	.01	.04	.06	.06	.06	.05
South Dakota	.0002	.001	.0001	.0007	.005	.02	.04	.04	.04	.07
Nebraska	.002	.003	.0006	.03	.14	.22	.44	.68	.86	1.21
Kansas	.02	.01	.01	.02	.05	.20	.40	.40	1.10	1.51
West North Central	.03	.03	.06	.09	.17	.38	.56	.72	.89	1.28
Kentucky	.80	.85	2.23	2.91	4.02	5.02	5.32	6.21	8.20	9.34
Tennessee	1.21	1.85	3.12	3.98	4.89	5.57	5.78	6.52	9.73	10.66
Alabama	9.44	9.43	14.71	15.44	14.10	15.10	19.85	20.88	22.72	27.54
Mississippi	7.94	11.27	15.52	14.83	17.22	18.14	21.60	26.39	30.38	34.82
East South Central	5.26	6.14	9.11	9.58	10.29	11.24	13.34	15.34	18.11	20.80
Arkansas	1.47	2.77	4.10	3.53	5.65	6.32	6.56	8.56	12.16	14.52
Louisiana	5.64	6.39	9.84	10.55	12.42	13.00	13.70	13.37	19.84	25.64
Oklahoma	.03	.05	.09	.08	.13	.21	.29	.50	.82	1.00
Texas	.36	.37	.85	.95	1.34	1.47	1.39	1.39	2.24	3.08
West South Central	.86	1.07	1.68	1.70	2.28	2.45	2.55	2.77	4.37	5.57
Montana	0	.008	.02	.05	.08	.14	.13	.09	.06	.44
Idaho	.002	.26	.52	.80	1.08	1.52	1.64	1.37	2.13	1.88
Wyoming	0	.007	.01	.008	.03	.16	.27	.18	.27	.20
Colorado	.07	.10	.26	.09	.76	.54	.65	.70	1.15	2.14
New Mexico	.008	.10	.03	.09	.62	1.20	1.06	1.26	3.70	3.35
Arizona	2.25	2.77	6.91	6.05	7.45	16.05	16.05	11.55	20.63	39.34
Utah	0	.20	.32	.03	.02	2.76	2.23	1.20	2.28	6.54
Nevada	.005	.02	.07	.16	.05	.16	.14	.08	.12	.09
Mountain	.10	.18	.43	.41	.72	1.21	1.28	1.06	1.80	3.25
Washington	.66	1.19	2.18	2.44	3.26	3.74	2.95	3.07	3.58	5.50
Oregon	.57	1.07	2.09	2.42	3.75	6.39	4.56	4.67	7.88	11.51
California	7.58	10.84	15.62	14.95	20.54	23.76	22.38	20.84	24.95	33.88
Pacific	4.36	6.13	9.00	8.91	12.39	14.84	13.70	13.01	15.80	21.79
Continental United States	2.15	2.25	3.26	3.39	3.78	4.22	4.59	4.86	5.60	6.88

[1] Computed from the total annual nitrogen consumption (Branch surveys) and acreages of 74 crops, comprising the acreages for 52 principal crops [1939–50, U. S. Department of Agriculture (*293*); 1951, U. S. Bureau of Agricultural Economics (*264, 266, 267*)] and 22 fruit and nut crops [1939–46, Palmer, Schlotzhauer, and Kiesler (*193*); 1947–51, (*264*)].

TABLE 9.—*Nitrogen: Wholesale prices per unit (20 pounds) of nitrogen at producing points or ports in bulk carlots by kind of material, every fifth year 1880–1925 and annually 1925–52* [1]

Calendar year	Ammonium sulfate	Anhydrous ammonia	Calcium cyanamide	Sodium nitrate	Ammoniating solutions, average	Urea	Natural organics, average [2]
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1880	4.01			4.13			3.42
1885	3.03			2.74			2.77
1890	3.18			2.33			2.46
1895	2.75			2.36			2.40
1900	2.79			2.37			2.57
1905	3.01			2.97			2.88
1910	2.64		3.43	2.76			3.03
1915	3.09		2.54	3.04			3.54
1920	4.08		3.40	4.44			8.71
1925	2.65		2.20	3.28			4.88
1926	2.52	1.75	2.19	3.27			4.62
1927	2.33	1.63	1.95	3.22			5.25
1928	2.27	1.54	2.01	2.88			6.13
1929	2.01	1.46	1.90	2.78			5.22
1930	1.79	1.40	1.65	2.49			4.50
1931	1.34	1.36	1.38	2.36			2.90
1932	1.02	1.34	1.08	1.86			1.83
1933	1.12	1.15	1.13	1.53	1.06		2.64
1934	1.18	1.09	1.20	1.54	1.02		3.41
1935	1.13	1.09	1.20	1.47	1.07		3.38
1936	1.17	1.09	1.21	1.55	1.05		3.52
1937	1.32	1.09	1.20	1.64	1.17	1.52	4.49
1938	1.36	1.09	1.29	1.68	1.22	1.37	3.52
1939	1.33	1.09	1.16	1.68	1.22	1.34	3.72
1940	1.37	1.09	1.20	1.68	1.22	1.32	3.55
1941	1.41	1.09	1.22	1.69	1.22	1.32	4.05
1942	1.43	1.09	1.44	1.74	1.22	1.37	4.70
1943	1.42	1.09	1.44	1.75	1.22	1.37	4.82
1944	1.42	.91	1.44	1.75	1.11	1.37	4.82
1945	1.42	.72	1.44	1.75	1.07	1.37	4.85
1946	1.44	.72	1.64	1.97	1.04	1.37	7.11
1947	1.60	.72	1.98	2.50	1.03	1.39	9.71
1948	2.03	.80	2.56	2.86	1.14	[3] 1.80	8.03
1949	2.29	.94	2.82	3.15	1.23	[3] 2.01	8.45
1950	1.95	.91	2.26	3.00	1.20	[3] 2.02	8.66
1951	1.97	.97	2.90	3.16	1.20	[3] 2.92	9.14
1952	2.09	.97	3.11	3.34	1.20	[3] 3.03	9.23

[1] Computed largely from published quotations in the "Oil, Paint, and Drug Reporter" (*1*). The early quotations for calcium cyanamide, ammonia, solutions, and urea were supplied by the producers. These prices are for spot purchases. Contract prices are usually lower than those given here.

[2] Straight average of the prices of fish scrap, animal tankage, dried blood, and cottonseed meal for 1900–32, inclusive, and of castor pomace, process tankage, fish scrap, cottonseed meal, and animal tankage for 1933–52, inclusive. An allowance has been made for the phosphorus and potassium where present.

[3] Quoted since Feb. 22, 1948, only on a delivered basis. An allowance of 20 cents per unit is made for this in the price given here.

TABLE 10.—*Nitrogen: Delivered prices per unit (20 pounds) of nitrogen in various forms, by regions and localities, 1935–49* [1]

Region and locality [2]	5-year average 1935–39		5-year average 1940–44			3-year average 1945–47			1948			1949		
	Solutions [3]	Ammonium sulfate	Solutions [3]	Ammonium sulfate	Ammonium nitrate	Solutions [3]	Ammonium sulfate	Ammonium nitrate	Solutions [3]	Ammonium sulfate	Ammonium nitrate [4]	Solutions [3]	Ammonium sulfate	Ammonium nitrate [4]
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
New England: Boston, Mass.	-------	1.33	1.23	1.51	1.76	1.20	1.57	1.64	1.29	1.87	2.18	1.50	2.58	-------
Middle Atlantic:														
Carteret, N. J.	1.18	1.21	1.22	1.40	1.41	1.15	1.47	1.72	1.35	2.06	-------	1.40	2.35	2.61
Baltimore, Md.	-------	1.20	1.22	1.40	-------	1.11	1.47	-------	1.36	1.99	-------	1.45	2.23	-------
Buffalo, N. Y., and Charles Town, W. Va.	-------	1.27	1.26	1.40	1.42	1.11	1.48	1.54	1.13	2.01	2.00	1.32	2.29	2.45
South Atlantic:														
Norfolk, Va.	1.20	1.38	1.21	1.47	1.50	1.09	1.57	1.49	1.19	2.31	2.75	1.23	2.45	-------
Wilmington, N. C.	1.00	1.23	1.21	1.42	1.51	1.15	1.40	1.54	1.30	2.02	1.99	1.31	2.67	2.05
Savannah, Ga.	1.18	1.21	1.21	1.30	-------	1.10	1.73	-------	1.19	2.64	-------	1.43	2.66	-------
Jacksonville, Fla.	1.20	1.23	1.23	1.41	1.57	1.16	1.57	1.56	1.40	2.14	1.83	1.45	2.64	2.05
Spartanburg, S. C.	-------	-------	1.31	1.54	1.59	1.21	1.69	1.61	1.23	2.23	1.95	1.38	2.78	2.20
Atlanta, Ga.	1.06	1.26	1.28	1.43	1.62	1.21	1.62	1.58	1.39	2.34	1.87	1.41	2.30	-------
East North Central:														
Columbus, Ohio	-------	1.27	-------	1.39	-------	1.12	1.49	-------	1.25	2.18	-------	1.43	2.46	-------
Chicago, Ill., and Sandusky, Ohio	-------	1.21	1.28	1.44	1.46	1.18	1.53	1.50	1.30	2.08	2.01	1.35	2.31	2.09
East St. Louis, Ill.	-------	1.22	-------	1.40	1.38	1.22	1.48	1.57	1.33	2.08	1.76	1.46	2.34	2.01
West North Central: Mason City, Iowa, Perry, Iowa, and Kansas City, Mo.	-------	-------	-------	-------	-------	1.22	1.90	-------	1.24	2.49	1.73	1.45	2.80	1.89
South Central:														
Louisville, Ky.	-------	-------	1.02	1.44	-------	1.16	1.57	-------	1.37	2.53	-------	1.47	2.85	-------
Nashville, Tenn.	1.04	1.27	1.33	1.46	1.51	1.20	1.64	1.51	1.37	2.52	1.99	1.39	2.58	2.05
Birmingham, Ala.	1.05	1.23	1.32	1.40	1.61	1.14	1.46	1.52	1.30	2.01	1.76	1.45	2.40	2.06
Tupelo, Miss., and New Orleans, La.	-------	-------	1.31	1.45	1.77	1.20	1.57	1.47	1.38	2.31	1.69	1.59	2.76	1.97
Shreveport, La., and Dallas, Tex.	-------	1.48	1.41	1.64	-------	1.29	1.83	1.50	1.42	2.61	1.67	1.44	2.81	1.96
Western: Los Angeles, Calif.	-------	-------	-------	-------	-------	-------	2.14	1.87	-------	2.45	2.22	1.79	2.69	2.27
Average delivered	1.12	1.27	1.25	1.44	1.56	1.17	1.60	1.57	1.30	2.31	1.98	1.43	2.57	2.13
Average f.o.b. [5]	[6] 1.14	1.26	1.20	1.41	1.38	1.05	1.48	1.38	1.14	2.03	1.71	1.23	2.29	1.73

[1] As reported by certain fertilizer-mixing companies. Lack of data indicates that none was bought by reporting companies in the period involved or that records are not now available. Mehring and Bennett (*142*).

[2] The plants for which reports were received were not always in the city named but were in that section. Where two or more cities are combined averages are given to conceal the exact prices paid by single companies.

[3] Includes anhydrous and aqua ammonia and ammoniating solutions. The same company often used several different types during the period under review. The prices of ammoniating solutions have usually been about the same and those of anhydrous and aqua ammonia considerably less than the ammoniating solutions in the same period.

[4] After July 1, 1948, regulations issued by the Interstate Commerce Commission prohibited bulk shipment. The f.o.b. quotations after this date are for bagged material.

[5] At points of production. The solution data are the average of spot prices for ammoniating solutions. The ammonium sulfate prices are averages of published weekly quotations. Those for ammonium nitrate are averages of data provided by American Cyanamid Co., Consolidated Mining & Smelting Co., Ltd., Tennessee Valley Authority, Spencer Chemical Co., and Hercules Powder Co. The *ammonium nitrate prices* have been more variable than the others; for example, in 1948 and 1949 they were as follows:

	1948	*1949*
Welland, Ontario, Canada	$2.32	$1.87
Trail, British Columbia, Canada	1.56	1.61
Sheffield, Ala.	1.48	1.63
Parsons, Kans.	1.46	1.79
Pinole, Calif.		1.74

[6] The f.o.b. price is higher than the delivered price because large discounts were given in some years on contracts for future delivery and these more than offset delivery charges.

TABLE 11.—*Nitrogen: Retail prices per unit (20 pounds) of nitrogen in several forms, 1880–1955* [1]

Calendar year	Ammonium sulfate [2]	Sodium nitrate [3]	Dried blood [4]	Calendar year	Ammonium sulfate [2]	Sodium nitrate [3]	Dried blood [4]
	Dollars	*Dollars*	*Dollars*		*Dollars*	*Dollars*	*Dollars*
1880	5.15	5.30	3.90	1918	6.46	6.76	8.70
1881	4.67	5.06	4.03	1919	4.66	6.56	8.90
1882	5.33	5.87	4.32	1920	4.80	5.92	10.70
1883	4.40	4.19	3.99	1921	3.84	4.83	5.67
1884	3.37	3.45	3.66	1922	3.23	4.32	7.40
1885	3.35	3.26	3.23	1923	4.08	4.53	8.39
1886	3.60	3.67	3.70	1924	3.80	4.53	6.44
1887	3.43	3.34	3.09	1925	3.65	4.73	6.71
1888	3.48	3.22	3.22	1926	3.73	4.59	7.59
1889	3.53	3.35	3.87	1927	3.28	4.28	7.27
1890	3.49	2.98	3.40	1928	3.33	4.18	8.76
1891	3.44	3.03	2.93	1929	3.05	4.04	7.99
1892	3.40	2.91	2.99	1930	2.92	3.80	7.53
1893	3.59	3.29	3.70	1931	2.36	3.24	4.48
1894	3.83	3.03	3.61	1932	1.62	2.67	4.08
1895	3.60	2.97	3.03	1933	1.55	2.17	3.46
1896	3.00	2.69	2.75	1934	1.96	2.44	[5] 4.20
1897	2.62	2.72	2.95	1935	1.80	2.23	4.72
1898	2.89	2.58	2.56	1936	1.75	2.14	5.13
1899	2.86	2.62	2.82	1937	1.81	2.22	7.15
1900	3.43	2.72	3.17	1938	1.85	2.25	6.86
1901	3.30	2.76	3.39	1939	1.86	2.25	6.23
1902	3.46	2.88	3.65	1940	1.98	2.22	6.80
1903	3.25	2.89	3.73	1941	2.13	2.30	6.89
1904	3.43	3.08	4.08	1942	2.31	2.57	--------
1905	3.33	3.30	3.90	1943	2.24	2.58	--------
1906	3.46	3.31	3.76	1944	2.24	2.55	--------
1907	3.40	3.73	4.09	1945	2.24	2.55	--------
1908	3.37	3.64	4.16	1946	2.33	2.64	--------
1909	3.32	3.41	4.19	1947	2.88	3.25	--------
1910	3.12	3.25	4.49	1948	3.34	3.82	--------
1911	3.20	3.22	4.46	1949	3.57	4.17	--------
1912	3.32	3.38	4.38	1950	3.18	3.87	--------
1913	3.45	3.76	4.43	1951	3.18	3.99	--------
1914	3.34	3.54	4.44	1952	3.26	4.22	--------
1915	3.27	3.22	4.78	1953	3.35	4.21	--------
1916	4.23	4.99	5.63	1954	3.29	4.00	--------
1917	5.22	5.60	6.45	1955	3.17	3.92	--------

[1] 1880–1935, Mehring and Deming (*146*); 1936–55, miscellaneous State reports and "Agricultural Prices" (*205*); estimated by dividing the average retail price per ton of material by the percent of nitrogen in the material.

[2] Average nitrogen content varied from 20.58 in 1880 to 20.85 percent in 1955.

[3] Average nitrogen content varied from 15.72 in 1880 to 16.10 percent in 1955.

[4] Average nitrogen content varied from 11.63 in 1880 to 12.95 percent in 1955. A deduction from the average quoted price was made for the retail value of the phosphorus contained. These prices are typical of the high-grade organics. No regular quotations have been given since 1941.

[5] Revised.

TABLE 12.—*Ammonia: Total production of ammonia liquor and total production and foreign trade of anhydrous ammonia, census years 1899–1954*

Calendar year	Production of ammonia liquor		Anhydrous ammonia		
	Byproduct coke oven [1]	Other [2]	Production [3]	Imports	Exports
	Tons NH_3	*Tons* NH_3	*Tons* NH_3	*Tons* NH_3	*Tons* NH_3
1899	500		1,222		
1904	9,875		2,876		
1909	7,864	7,200	8,421		
1914	14,500	10,000	8,330		
1919	25,268	10,038	13,765		
1921	16,045	10,608	13,819		
1923	29,340	12,736	11,765		
1925	36,628	16,309	15,962		
1927	27,347	11,897	22,358		
1929	28,014	19,745	86,075		1,165
1931	19,545	12,585	63,549		1,093
1933	20,254	6,896	75,092		373
1935	20,889	11,958	69,589		812
1937	27,086	13,090	108,071	1	1,098
1939	24,132	15,653	310,822	0	2,407
1941	31,389	14,073	501,271	2,941	6,058
1942	33,947	11,825	543,352		1,186
1943	31,106	14,755	[4]543,380	5,863	1,983
1944	31,665	14,123	[4]543,651	0	3,623
1945	27,607		[4]548,635	0	4,312
1946	24,991		[4]725,537	7	6,159
1947	25,718	23,760	[4]1,117,212	0	6,002
1948	24,753		1,089,786	209	3,407
1949	22,750		1,294,057	0	3,929
1950	23,387	27,974	1,568,569	0	10,202
1951	24,878	34,665	[4]1,777,074	0	5,907
1952	22,059	33,535	2,052,114	0	15,431
1953	24,840	33,676	2,287,785	0	15,119
1954	16,704		[5]2,719,660	0	39,257

[1] U. S. Bureau of Mines (*271, 272*) and U. S. Geological Survey (*307*).
[2] U. S. Bureau of the Census (*279*); 1947 and 1950–53 reported as tons of aqua ammonia.
[3] U. S. Bureau of the Census (*279, 285*). Including Tennessee Valley Authority but excluding plants operated for the Government. The data for 1899–1937, inclusive, are production for sale. For the remaining years they are total production.
[4] A small amount in the form of aqua ammonia is included in the figures reported by 1 company.
[5] Preliminary.

TABLE 13.—*Ammonia and its solutions: Consumption by uses, 1928–54* [1]

Calendar year	Anhydrous ammonia		Aqua ammonia		Solutions [2]	
	As separate material [3]	In mixed fertilizers	As separate material [4]	In mixed fertilizers	As separate material [5]	In mixed fertilizers
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1928	0		0	14,000	0	0
1929	0	16,000	0	36,000	0	0
1930	0	25,000	0	42,000	0	0
1931	0	16,931	0	[6]31,372	0	0
1932	0	8,000	0	15,000	0	1,000
1933		12,000	0	11,000	0	6,000
1934	1,500	10,500	0	6,000	0	21,000
1935	2,500	[6]5,000	0	[6]7,500	0	41,000
1936	4,000	4,000	0	17,000	0	71,000
1937	4,000	[6]3,000	0	[6]22,000	0	126,000
1938	4,000	1,000	0	20,000	0	95,000
1939	4,000	[6]1,000	0	[6]20,000	0	111,000
1940	5,000	3,000	0	33,000	0	130,000
1941	7,000	4,000	0	35,600	0	167,000
1942	1,500	1,500	0	32,000	0	97,250
1943	7,000	3,000	0	38,000	0	160,000
1944	13,000	4,000	0	42,000	0	270,000
1945	17,500	3,700	0	41,000	0	265,000
1946	20,000	12,000	89	45,000	4,000	404,000
1947	29,026	57,164	397	[7]72,744	5,029	[6]526,072
1948	54,840	32,000	5,785	70,000	3,662	539,000
1949	78,830	35,000	7,537	70,000	8,678	525,000
1950	101,702	40,000	12,717	60,000	14,620	570,000
1951	128,260	51,000	19,798	59,000	17,603	707,000
1952	187,888	43,000	20,026	45,000	34,315	750,000
1953	239,843				[8]89,445	
1954	350,474				[8]191,592	

[1] Includes Hawaii and Puerto Rico. Estimated unless otherwise noted. Quantities given in terms of the commodity.
[2] 1934, 1939, 1941–54, based on Branch surveys for year ended June 30.
[3] Aqueous solutions of ammonia with ammonium nitrate, urea, or sodium nitrate.
[4] "Census of Manufactures" (*276*). In the original report aqua ammonia was given in terms of contained ammonia.
[5] *The tonnages of anhydrous ammonia and aqua ammonia reported by* the U. S. Bureau of the Census (*276*) in 1935 were 13,308 and 38,786; in 1937, 26,360 and 58,060; and, in 1939, 13,047 and 77,289, respectively. No data on ammoniating solutions were given for these years to avoid revealing the output of 2 competing companies, but the free ammonia in these solutions was reported partly as anhydrous ammonia and partly as aqua ammonia equivalents.
[6] Year ended June 30.
[7] Includes aqua ammonia.

TABLE 14.—*Ammonium sulfate: Total production, foreign trade, stocks on land, and consumption as fertilizer, 1900, 1910, 1920, and 1925–54*

Calendar year	Production		Imports [2]	Exports [2]	Stocks on hand at coke-oven plants Dec. 31 [4]	Consumption as fertilizer			
	Byproduct [1]	Synthetic [3]				In Hawaii and Puerto Rico [5]	In continental United States		Total [6]
							As separate material [4]	In mixed fertilizers [7]	
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*1,000 tons*
1900	[8] 17,648		[10] 8,411				1,000	[8] 4,120	5
1910	45,335	2,368	92,343	[11] 345		13,344	13,000	109,000	135
1920	340,008	10,000	2,233	[12] 66,714	36,928	12,384	112,000	149,000	273
1925	513,359	2,854	26,613	137,918	36,677	38,724	135,000	218,000	392
1926	589,430	3,500	9,392	202,860	44,537	46,356	140,000	275,000	461
1927	614,361	6,191	19,211	155,335	18,430	57,653	102,000	290,000	450
1928	700,418	6,000	47,114	104,177	53,493	66,889	83,000	400,000	550
1929	744,689	5,926	21,069	162,132	80,017	86,344	63,000	460,505	610
1930	673,960	7,000	37,838	91,461	96,583	94,257	93,000	424,000	611
1931	495,339	12,700	127,099	74,930	84,609	101,892	125,000	322,878	550
1932	287,619	15,000	344,188	16,511	66,938	112,237	161,000	329,000	602
1933	339,280	32,950	393,404	15,968	74,784	151,045	126,000	380,000	660
1934	392,722	40,000	207,537	28,704	78,948	135,841	111,000	363,000	610
1935	461,756	57,995	88,549	87,837	47,704	119,333	127,000	304,408	551
1936	599,823	50,000	171,665	118,476	86,744	153,103	130,000	342,000	625
1937	644,870	59,551	93,396	82,786	65,371	145,595	154,000	380,578	680
1938	436,932	55,000	135,337	34,402	45,400	134,661	140,000	313,000	588
1939	580,274	55,000	124,052	32,264	49,800	126,626	160,000	339,520	626
1940	717,192	62,000	47,302	168,954	44,555	138 736	160,000	344,000	65
1941	745,384	59,000	35,119	84,617	31,091	145,814	175,073	354,000	675
1942	766,804	48,000	53,340	27,490	43,676	75,559	150,574	602,000	828
1943	761,270	52,000	99,827	78,005	28,397	103,933	147,548	583,000	834
1944	818,244	83,004	103,628	10,614	69,031	77,733	143,230	685,000	906
1945	764,293	88,863	118,890	20,752	32,175	153,887	95,752	710,000	960
1946	643,752	156,653	101,558	25,257	33,411	113,086	124,420	669,000	906
1947	809,446	195 548	114,398	88,802	28,718	138,919	202,061	637,097	978
1948	830,683	264,476	105,887	210,491	24,364	142,000	111,633	707,000	961
1949	756,807	816,195	105,498	660,723	69,703	135,000	148,957	700,000	984
1950	831,016	[13] 1,137,721	243,532	813,576	57,689	210,000	283,959	750,000	1,246
1951	898,263	622,084	216,106	134,100	41,345	220,000	353,501	960,000	1,534
1952	803,412	812,795	238,063	121,587	40,506	....	410,364	....	....
1953	946,133	376,232	523,858	30,446	157,588	....	437,811	....	....
1954	822,818	[14] 925,447	305,012	202,249	156,296	....	[10] 466,823	....	....

[1] U. S. Bureau of Mines (*271, 279*) and U. S. Bureau of the Census (*279*). From coke, manufactured gas, and boneblack industries.

[2] 1910, U. S. Federal Trade Commission (*300*); 1925, 1927, 1929, 1935, and 1937, U. S. Bureau of the Census (*279*); 1911–54, U. S. Bureau of the Census (*285*); other years, estimated.

[3] U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*276*), and U. S. Bureau of the Census (*280, 284, 287, 288*). Includes reexports of foreign goods.

[4] Stocks on hand Dec. 31, 1919, were 22,027 tons. Stocks on hand in synthetic ammonia plants are not regularly determined, but unpublished results of special surveys made by the U. S. Bureau of the Census were as follows: Dec. 31, 1941, 8,305; June 30, 1945, 2,410; Jan. 31, 1951, 24,653; Dec. 31, 1951, 43,081; and Dec. 31, 1952, 50,456. Additional stocks were on hand in warehouses and in fertilizer-mixing plants.

[5] Shipments from the mainland plus imports into Hawaii and Puerto Rico (*270, 275, 280, 284*). Publication of shipments from the mainland to Hawaii ceased after 1947. These shipments are estimated for later years at 10,000 to 20,000 tons annually.

[6] 1900–31, estimated; 1932–33, from table 15; 1954, Scholl, Wallace, and Fox (*224*). Those for 1932–40 were partly estimated and have been rounded off.

[7] 1899, 1929, 1931, 1935, 1937, 1939, and 1947, U. S. Bureau of the Census (*276*); other years, estimated. The Bureau of the Census also gave the following data: 1909, 65,592; 1914, 149,924; and 1919, 135,882 tons.

[8] The rounded sum of the 3 preceding columns.

[9] 1899.

[10] Year ended June 30.

[11] Reexports only.

[12] 8 months only.

[13] Includes production for the Army for use in occupied countries.

[14] Preliminary.

TABLE 15.—*Ammonium sulfate: Consumption as separate material, by regions and States, calendar years 1932–53* [1]

State and region	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Ton	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Maine	1,700	1,500	1,522	1,800	850	700	500	207	200	200	160	339	44	60	250	46	52	229	394	195	133	137
New Hampshire	300	250	211	220	200	200	100	39	178	208	148	254	55	57	40	21	10	14	39	8	3	34
Vermont	[2] 250	[2] 63	[2] 44	[2] 83	[2] 102	[2] 51	[2] 24	[2] 47	[2] 10	443	337	84	0	4	0	0	5	5	1	404	5	0
Massachusetts	[2] 1,783	[2] 1,179	[2] 867	[2] 909	[2] 909	[2] 905	[2] 714	[2] 591	[2] 810	796	521	358	110	301	178	53	106	38	332	261	283	20
Rhode Island	50	60	77	[2] 12	50	50	50	78	60	70	0	19	65	52	43	20	51	107	13	182	173	11
Connecticut	500	400	390	450	400	400	350	[2] 306	[2] 333	272	504	333	83	226	132	147	50	59	181	209	116	32
New England	4,583	3,452	3,111	3,334	2,571	2,306	1,738	1,565	1,600	2,047	1,618	1,387	357	790	641	287	280	452	960	1,309	712	214
New York	3,000	2,500	2,096	2,200	2,000	2,000	2,000	1,662	[2] 3,248	4,780	3,297	3,342	527	364	127	374	384	317	488	596	810	1,023
New Jersey	800	600	532	500	400	[2] 387	[2] 350	[2] 425	[2] 1,330	1,072	752	265	247	201	402	348	173	177	169	325	201	285
Pennsylvania	[2] 1,500	[2] 937	[2] 804	[2] 713	[2] 574	[2] 470	[2] 540	[2] 361	[2] 967	511	424	254	220	378	358	326	411	370	569	1,685	2,114	2,411
Delaware	150	120	141	150	150	160	50	8	20	20	41	0	0	0	0	0	0	1	2	4	63	15
Maryland	[2] 374	[2] 285	[2] 278	[2] 450	[2] 330	[2] 265	[2] 205	[2] 198	[2] 211	146	55	207	70	72	52	28	50	7	89	25	156	65
District of Columbia	50	50	50	75	60	50	40	41	35	33	5	0	1	0	1	0	0	1	0	0	1	5
West Virginia	1,200	1,000	1,093	1,100	800	500	300	235	125	99	517	4	41	37	15	493	183	443	310	190	359	206
Middle Atlantic	7,074	5,492	4,984	5,188	4,314	3,882	3,485	3,130	5,915	6,661	5,088	4,072	1,100	1,052	955	1,567	1,701	1,310	1,627	2,835	3,704	4,080
Virginia	3,000	1,800	1,876	1,700	1,000	1,500	1,200	1,140	1,200	1,500	856	200	78	41	132	349	61	264	2,576	457	658	136
North Carolina	[2] 45,727	27,000	6,572	9,000	5,500	4,200	5,000	[2] 4,348	[2] 4,833	2,783	1,674	1,698	343	355	830	1,367	1,871	1,170	2,125	2,339	818	186
South Carolina	8,000	6,000	4,035	5,800	4,000	4,700	5,000	[2] 4,954	[2] 5,120	6,063	2,248	2,921	2,139	1,006	1,034	4,715	3,132	2,470	3,075	5,189	1,517	1,379
Georgia	17,000	15,000	11,941	15,000	12,000	12,000	8,000	8,755	8,500	8,500	965	1,355	1,702	781	793	3,450	5,541	4,930	3,021	1,851	2,912	2,001
Florida	5,000	3,500	4,522	5,200	5,000	5,700	4,000	4,643	[2] 3,456	4,130	1,695	489	1,060	1,189	468	510	591	1,024	1,647	1,775	1,900	3,034
South Atlantic	78,727	53,300	28,946	36,700	28,600	28,100	23,200	23,340	23,416	22,970	7,171	6,683	5,322	3,372	3,857	10,391	11,196	8,858	12,444	11,611	7,814	6,738
Ohio	[2] 3,407	[2] 3,776	[2] 3,600	[2] 6,310	[2] 4,060	[2] 4,842	[2] 4,403	[2] 4,902	[2] 7,088	7,462	6,099	2,083	921	2,027	1,881	1,574	3,419	2,470	7,242	6,248	7,330	8,214
Indiana	[2] 722	[2] 1,357	[2] 905	[2] 1,379	[2] 944	[2] 1,726	[2] 820	[2] 1,475	[2] 3,014	5,061	4,908	5,423	2,440	62	300	227	1,287	352	1,418	5,810	9,830	4,790
Illinois	[2] 777	[2] 1,060	[2] 1,291	[2] 2,277	[2] 1,309	[2] 1,952	[2] 1,407	[2] 1,536	[2] 4,304	4,836	2,002	921	460	202	174	906	514	543	2,493	12,184	29,525	22,701
Michigan	[2] 2,869	[2] 3,060	[2] 3,157	[2] 1,077	[2] 2,747	[2] 1,760	[2] 1,713	[2] 2,197	[2] 2,488	4,008	2,261	4,364	97	51	937	5,269	2,194	2,773	2,015	3,220	5,553	8,126
Wisconsin	[2] 258	[2] 440	[2] 1,116	[2] 1,404	[2] 300	[2] 702	[2] 1,125	[2] 537	[2] 979	974	593	702	127	266	85	494	229	234	435	392	304	608
East North Central	8,033	9,693	10,069	13,047	9,540	11,018	9,468	10,707	17,873	22,936	15,803	14,450	4,031	2,608	3,377	8,470	7,643	6,372	13,803	27,854	52,650	44,439
Minnesota	[2] 227	[2] 255	[2] 120	[2] 216	[2] 41	[2] 130	[2] 254	[2] 239	[2] 308	460	407	66	50	193	2,338	2,922	533	149	113	270	338	1,930
Iowa	20	25	26	25	[2] 44	50	[2] 67	[2] 51	[2] 98	74	30	12	2	27	50	332	246	283	288	4,405	4,956	13,037
Missouri	[2] 163	[2] 210	[2] 245	[2] 233	[2] 49	[2] 290	[2] 240	[2] 160	231	233	44	165	30	58	177	212	717	206	409	2,949	9,954	6,365
North Dakota	0	0	0	0	0	0	0	0	0	0	0	0	40	0	1	42	0	26	49	0	15	19
South Dakota	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	240	190	172	131	277
Nebraska	10	10	50	40	30	60	133	150	100	20	20	0	0	0	45	950	603	323	1,042	11,137	8,593	9,471
Kansas	[2] 21	[2] 34	[2] 42	[2] 37	[2] 49	[2] 50	[2] 22	[2] 261	[2] 272	178	282	216	10	46	109	370	1,829	316	2,061	7,965	9,178	5,898
West North Central	441	534	490	551	213	505	716	861	1,009	965	873	435	144	324	2,720	4,828	4,018	1,543	4,152	26,959	30,165	37,990
Kentucky	250	200	119	150	300	250	250	229	[2] 468	461	485	374	16	14	131	29	139	304	558	2,013	1,418	1,450
Tennessee	500	400	455	500	550	600	550	573	600	550	200	109	21	10	9	335	555	979	760	220	714	523
Alabama	8,000	5,000	4,199	5,500	4,700	6,000	[2] 5,116	7,000	6,000	4,000	717	209	999	116	338	3,052	4,805	5,116	3,715	4,708	5,459	866
Mississippi	7,524	5,410	7,466	10,246	19,249	26,613	24,954	33,210	39,702	40,435	36,825	24,850	2,583	26	207	4,913	8,273	9,384	34,182	31,552	31,348	13,946
East South Central	16 [illegible]	11,010	12,233	16,396	24,706	33,463	30,870	41,012	46,770	45,446	38,227	25,542	3,619	160	685	8,329	13,832	15,843	39,215	38,493	38,939	16,791
Arkansas	[illegible]	500	939	[2] 1,030	1,500	[2] 1,942	[2] 1,539	283	[2] 5,587	1,728	2,404	2,330	1,073	15	243	131	578	3,028	3,580	7,245	8,827	8,567
Louisiana	[2] 9,356	[2] 5,036	4,550	[2] 3,810	[2] 5,823	[2] 4,606	[2] 4,053	4,284	[2] 2,977	1,608	5,428	3,072	748	306	610	551	604	1,502	2,494	5,684	6,489	6,631
Oklahoma	[2] 54	[2] 30	40	[2] 48	[2] 37	[2] 90	[2] 161	103	[2] 127	177	137	65	51	0	131	240	151	168	453	754	2,639	2,728
Texas	[2] 1,039	[2] 801	770	[2] 1,139	[2] 1,588	[2] 1,610	[2] 2,546	2,253	[2] 3,064	2,790	3,296	1,985	466	107	480	919	1,194	2,170	8,093	15,830	26,361	34,452
West South Central	11,245	6,367	6,317	6,027	8,948	8,248	8,301	6,953	11,755	6,303	11,265	7,452	2,338	488	1,464	1,841	2,527	6,808	15,220	29,513	44,310	52,378

Montana	20	20	20	30	50	100	100	100	50	30	0	0	12	96	632	811	801	177	2,128	2,968	3,075	3,937
Idaho	50	80	84	100	100	150	100	308	400	590	863	1,065	1,517	1,245	4,993	6,903	4,750	4,574	8,779	7,079	16,100	20,049
Wyoming	30	40	50	30	25	20	20	20	15	10	20	0	0	0	40	250	590	56	104	300	381	770
Colorado	250	150	165	100	200	79	700	400	400	500	565	713	1,005	312	461	2,042	2,105	3,033	4,973	3,807	2,143	2,749
New Mexico	20	20	31	40	50	80	90	129	108	777	270	170	0	30	47	291	405	966	777	1,475	810	1,992
Arizona	50	50	78	100	200	700	500	563	653	1,071	1,390	2,384	2,325	2,067	473	1,529	1,860	828	4,049	17,023	9,378	21,489
Utah	30	40	50	70	100	200	100	200	300	300	400	595	1,470	358	1,899	3,810	1,729	1,727	8,714	10,425	8,903	14,178
Nevada	10	10	56	40	30	60	133	150	100	20	20	0	0	1	65	7	5	5	3	151	62	391
Mountain	460	410	534	510	755	1,389	1,752	1,870	2,026	3,208	3,528	4,907	6,329	4,109	8,610	15,833	12,305	11,366	29,527	43,278	40,832	65,555
Washington	1,500	2,000	2,610	3,030	3,000	3,000	3,500	3,446	4,000	3,500	8,252	5,107	7,260	6,800	11,288	9,252	6,708	5,813	8,495	8,143	12,882	20,797
Oregon	800	1,000	1,258	1,500	1,600	1,500	1,200	551	1,500	2,000	2,542	3,296	4,502	4,837	24,691	17,079	8,044	9,359	29,531	21,269	31,343	34,392
California	[3]31,405	[3]32,761	[3]40,774	[3]40,964	[3]45,647	[3]60,957	[3]55,921	[3]66,364	[3]53,107	59,031	56,149	74,214	108,222	71,206	66,132	124,184	43,379	80,167	131,185	142,148	147,007	154,523
Pacific	33,705	35,761	44,642	45,464	50,247	65,457	60,624	70,361	58,607	64,531	66,943	82,617	119,984	82,843	102,111	150,515	58,131	95,339	169,211	171,560	191,232	209,712
Total	160,542	125,980	111,320	127,417	129,084	154,408	140,154	150,802	169,090	175,073	150,574	147,548	143,230	95,752	124,420	202,061	111,633	148,957	285,059	353,501	410,364	437,811

[1] 1932–40, estimated except as otherwise noted; the 1934 and 1939 estimates are based on surveys (*146, 150*). 1941–53, based on Branch surveys.

[2] State report, reference to which is given in table 106.

[3] Fiscal year ending in the year shown.

TABLE 16.—*Ammonium nitrate: Production, foreign trade, and consumption, 1935–54*

Calendar year	Production [1]		Imports [2]		Exports of fertilizer-grade [3]	Consumption [4]				
						In Hawaii and Puerto Rico [4]	In continental United States			
							Solid forms [5]		Liquid forms [6]	
	Fertilizer-grade	Total	Mixed with limestone	Fertilizer-grade			As separate material	In mixed fertilizers	As separate material	In mixed fertilizers
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1935			35,315	0	0	3,000	12,000	23,000	0	12,000
1936			62,150	0	0	400	17,000	45,000	0	18,000
1937			74,300	0	0	500	27,000	47,000	0	21,000
1938			75,507	0	0	0	29,000	47,000	0	21,000
1939			75,015	0	0	0	30,000	45,145	0	22,500
1940			17,470	0	0	0	16,000	1,000	0	37,800
1941			0	0	0	0	500	0	0	60,000
1942			0		0	0	228	0	0	31,300
1943		383,358	2,895	60,991	[7] 8,000	500	75,576	5,000	0	81,000
1944		434,090	317	109,347	[7] 10,000	26,000	209,000	115,000	0	114,000
1945		421,487	655	134,446	[7] 70,000	17,000	198,708	125,000	500	135,000
1946		724,899	1,105	122,466	[7] 100,000	10,000	402,890	125,000	2,500	215,000
1947	928,161	1,088,809	1,302	98,022	[7] 750,000	10,000	472,226	134,362	8,300	283,000
1948	812,833	988,342	995	100,564	[7] 700,000	3,000	398,183	55,000	7,000	284,000
1949	880,279	1,018,706	0	138,695	470,443	12,000	497,405	82,000	4,500	283,000
1950	1,018,308	1,213,911	1,800	222,812	94,169	10,000	751,997	110,000	8,500	316,000
1951	1,139,815	1,346,443	121,403	221,055	1,255	5,000	916,117	93,000	10,000	459,000
1952	1,258,585	1,467,341	211,999	242,810	19,076	200	1,000,897			
1953	1,328,159	1,568,457	514,163	240,218	2,174	0	1,281,744			
1954	1,622,726	1,857,626	306,865	218,073	9,402					

[1] U. S. Bureau of the Census (*285*). Total *includes production for all* purposes by industrial plants and the Tennessee Valley Authority but excludes the production of ordnance plants.

[2] U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*280, 284, 287, 288*). Details not given in these publications were obtained from the code books on file in the Foreign Trade Division, U. S. Department of Commerce. The exports include small quantities of reexports of Canadian material. In 1946 to 1949, inclusive, the exports include large shipments to occupied areas in Europe and Asia by the Army.

[3] Includes ammonium nitrate-limestone mixtures, ammonium sulfate-nitrate, ammonium nitrate-water, and ammonium nitrate-ammonia-water solutions.

[4] *Imports into Hawaii and Puerto Rico plus shipments from the mainland.* Data for 1935–37 are for imported Cal-Nitro.

[5] Based on Branch surveys and Scholl, Mehring, and Wallace (*216*).

[6] All liquid forms estimated to average 60 percent ammonium nitrate.

[7] Estimated from the exports of chemical nitrogenous materials, n.e.s., which consisted largely of this material.

TABLE 17.—*Ammonium nitrate: Consumption as separate material by regions and States and Territories, calendar years 1942–53* [1]

State and region or Territory	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	0	0	2,991	189	279	344	244	306	751	1,494	1,286	1,157
New Hampshire	0	0	451	383	270	72	13	36	436	370	407	741
Vermont	0	41	368	289	188	68	1	22	207	308	346	349
Massachusetts	0	18	810	647	797	207	68	102	683	525	1,020	929
Rhode Island	0	0	60	50	69	60	33	11	47	37	71	157
Connecticut	0	1	349	291	284	28	50	53	341	432	588	377
New England	0	60	5,029	1,849	1,886	839	409	620	2,465	3,166	3,718	3,710
New York	0	159	3,157	3,873	3,375	3,293	724	2,041	4,884	5,670	9,570	11,395
New Jersey	0	4	352	407	307	656	358	510	1,488	1,636	3,417	2,631
Pennsylvania	0	1	708	540	518	295	64	207	1,301	1,543	3,747	4,103
Delaware	0	0	238	80	190	52	219	112	543	495	1,613	1,751
District of Columbia	0	0	0	0	0	0	0	0	0	1	0	7
Maryland	0	2	339	37	217	1,752	667	211	572	626	1,735	1,769
West Virginia	0	0	110	92	186	346	150	96	343	240	422	761
Middle Atlantic	0	166	4,904	5,029	4,793	6,304	2,182	3,177	9,221	10,211	20,510	22,417
Virginia	0	1,209	2,216	1,221	3,767	3,914	3,289	2,660	3,354	3,762	6,143	5,202
North Carolina	0	866	2,592	976	4,582	3,424	4,029	7,438	8,273	13,639	21,275	17,852
South Carolina	0	327	1,659	3,200	2,929	2,937	4,425	8,743	18,881	19,978	23,099	19,902
Georgia	0	1,517	2,846	3,431	4,244	10,059	11,537	7,458	15,254	15,610	18,682	22,958
Florida	0	142	2,702	3,986	943	1,508	1,035	2,851	3,192	5,509	7,604	9,082
South Atlantic	0	4,061	12,015	12,814	16,465	21,842	24,315	29,150	48,954	58,498	76,803	74,996
Ohio	0	86	4,923	8,757	2,527	3,115	1,864	2,401	5,087	8,188	10,315	11,503
Indiana	0	80	752	3,950	5,445	6,632	7,164	11,283	23,964	38,688	45,157	42,072
Illinois	0	4	1,930	2,918	6,602	11,061	11,643	11,970	19,300	28,163	30,040	29,288
Michigan	0	2	4,914	4,212	4,847	4,705	3,092	4,712	6,000	6,019	10,001	12,474
Wisconsin	0	96	5,497	11,354	7,460	12,028	12,273	7,472	7,561	7,542	9,605	9,702
East North Central	0	268	18,016	31,191	26,881	37,541	36,036	37,838	61,912	89,498	105,208	105,099
Minnesota	0	1	193	95	1,488	3,276	3,987	3,657	4,455	6,698	8,228	8,844
Iowa	0	0	737	484	2,211	10,820	14,029	20,421	16,514	27,032	30,323	40,136
Missouri	0	124	402	696	1,984	10,259	9,535	14,601	25,739	25,841	30,545	38,145
North Dakota	0	0	0	0	10	40	245	641	283	279	354	412
South Dakota	0	0	0	0	0	10	120	362	478	1,025	1,137	2,534
Nebraska	0	0	0	1,030	4,024	9,411	10,327	15,005	27,880	18,757	22,786	34,173
Kansas	0	0	20	144	1,929	6,348	5,059	18,798	27,444	22,058	23,924	21,890
West North Central	0	125	1,352	2,449	11,646	40,164	43,302	73,485	102,793	101,690	117,297	146,140
Kentucky	0	651	4,705	4,933	8,758	9,707	7,252	12,199	20,056	65,910	28,067	27,354
Tennessee	0	3,126	6,952	6,159	14,459	14,230	8,099	10,554	28,672	35,341	54,442	40,905
Alabama	12	2,440	11,053	10,702	18,174	15,754	17,887	21,032	40,977	36,652	58,693	56,720
Mississippi	91	26,920	57,393	15,972	58,048	91,550	56,863	80,385	105,506	76,320	124,319	117,347
East South Central	103	33,137	80,103	37,766	99,439	131,247	90,101	124,170	195,211	214,223	265,521	242,323
Arkansas	120	2,400	7,472	3,063	23,757	27,909	25,243	31,539	44,652	39,981	39,044	36,237
Louisiana	0	1,343	9,959	3,568	15,859	32,646	23,240	16,348	29,831	26,884	23,654	28,651
Oklahoma	0	0	169	13	364	809	1,395	2,480	4,722	6,113	8,436	8,879
Texas	0	5,863	12,207	15,859	27,611	25,353	11,481	12,203	18,329	25,580	24,543	27,517
West South Central	120	9,606	29,807	23,103	67,591	86,717	61,359	62,630	97,534	98,558	95,677	101,284
Montana	0	0	0	296	623	470	0	0	380	2,820	3,510	5,389
Idaho	0	100	683	1,576	2,411	1,035	1,531	919	3,300	3,655	7,923	11,599
Wyoming	0	0	0	2	1	100	0	80	235	60	202	1,450
Colorado	0	0	1,120	1,366	5,310	1,041	1,001	1,317	3,546	4,499	4,535	5,397
New Mexico	0	0	6	742	817	1,035	455	792	1,338	1,296	1,513	1,720
Arizona	0	1,764	1,519	1,126	6,848	7,225	4,092	3,948	7,994	11,503	9,797	13,358
Utah	0	0	75	138	576	881	506	1,217	3,861	3,359	3,500	4,883
Nevada	0	0	10	0	0	0	5	0	0	201	88	159
Mountain	0	1,864	3,413	5,246	16,586	11,787	8,550	8,273	20,654	27,303	31,068	43,946
Washington	0	1,045	1,330	3,028	6,145	3,931	3,154	4,878	7,922	9,005	16,429	23,361
Oregon	0	630	1,335	1,473	1,954	4,057	2,919	8,336	14,132	17,246	18,606	22,591
California	0	17,866	15,365	31,607	83,874	60,063	41,078	52,016	66,449	70,662	69,357	73,280
Pacific	0	19,541	18,030	36,108	91,973	68,051	47,151	65,230	88,503	96,913	104,482	119,232
Continental United States	223	68,828	172,720	155,555	337,260	404,492	313,405	404,573	627,247	700,150	820,284	859,147
Alaska										120	131	152
Hawaii	0	99	87	6,773	356	408	1,735	10,039	13,505	328	0	0
Puerto Rico	0	3,146	24,127	7,838	3,055	8,565	1,211	1,924	93	0	0	0
Territories	0	3,245	24,214	14,611	3,411	8,973	2,946	11,963	13,598	448	131	152
Total	223	72,073	196,943	170,166	340,671	413,465	316,351	416,536	640,845	700,598	820,415	859,299

[1] Based on Branch surveys and Scholl, Mehring, and Wallace (*215*); fertilizer-grade ammonium nitrate contained 32.5 to 33.5 percent nitrogen.

TABLE 18.—*Calcium cyanamide: Imports and estimated consumption by uses, 1910, 1915, 1920, and 1925–54*

Calendar year	Imports [1]	Estimated consumption		
		As separate material [2]	In mixed fertilizers [3]	Total
	Tons	*Tons*	*Tons*	*Tons*
1910	3,965	0	3,000	3,000
1915	33,648	500	32,500	33,000
1920	79,868	0	18,000	18,000
1925	109,731	2,000	68,000	70,000
1926	98,978	3,000	82,000	85,000
1927	122,450	7,500	82,500	90,000
1928	152,014	20,000	89,000	109,000
1929	206,371	20,000	77,389	97,000
1930	161,865	25,000	69,000	94,000
1931	57,472	15,000	39,509	55,000
1932	79,048	7,000	28,000	35,000
1933	71,503	25,000	30,000	55,000
1934	92,353	28,000	32,000	60,000
1935	112,261	33,000	32,406	65,000
1936	126,407	35,000	35,000	70,000
1937	138,227	65,000	44,157	109,000
1938	133,414	53,000	37,000	90,000
1939	148,622	60,000	34,779	95,000
1940	132,567	80,000	30,000	110,000
1941	143,878	83,000	33,000	116,000
1942	90,000	32,000	58,000	90,000
1943	125,634	85,444	14,000	99,000
1944	101,886	68,592	7,500	76,000
1945	141,057	92,478	26,000	118,000
1946	163,093	103,574	27,000	131,000
1947	153,764	96,396	29,380	125,776
1948	110,504	57,528	29,090	87,000
1949	115,885	83,219	17,000	100,000
1950	97,725	79,576	15,000	95,000
1951	68,231	41,429	15,000	56,000
1952	96,195	68,584	----------	----------
1953	82,218	65,510	----------	----------
1954	84,211	----------	----------	----------

[1] U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*275*), and U. S. Bureau of the Census (*280, 284, 288*). The bulk of the imports came from Canada, but in some years large quantities came from Europe and Asia.

[2] Includes Territories; 1910–42, estimated from State tonnage reports; 1943–53, based on Branch surveys.

[3] Continental United States. 1929, 1931, 1935, 1937, 1939, and 1947, "Census of Manufactures" (*276*); other years, estimated. The "Census of Manufactures" for 1914 and 1919 reported 25,911 and 16,926 tons, respectively, used in making mixed fertilizers and Goldsmeiser (*66*) gives 37,230 and 6,099 for 1917 and 1918, respectively.

TABLE 19.—*Calcium cyanamide: Consumption as separate material, by regions and States, year ended June 30, 1934 and calendar years 1942–53* [1]

State and region	Year ended June 30, 1934	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	229	[2] 100	216	45	84	177	300	306	426	251	193	117	131
New Hampshire	84	27	123	28	100	68	108	8	27	58	33	2	22
Vermont	329	30	176	76	97	40	19	27	20	22	12	6	4
Massachusetts	1,156	368	164	208	215	159	197	229	145	223	162	144	225
Rhode Island	117	20	136	0	41	63	16	24	18	23	10	19	46
Connecticut	369	75	162	178	162	181	177	145	43	73	85	74	43
New England	2,284	626	977	533	699	688	817	739	679	650	495	362	471
New York	970	210	368	201	781	1,073	1,223	1,469	691	1,946	898	974	1,697
New Jersey	123	1,294	697	296	457	1,792	2,599	3,268	1,394	2,253	1,323	2,292	3,029
Pennsylvania	257	721	239	242	503	737	816	598	1,089	1,375	1,195	1,020	1,759
Delaware	65	201	73	6	48	635	63	59	11	57	29	80	157
Maryland	674	675	342	534	1,223	1,211	1,089	958	592	624	651	842	1,103
District of Columbia	0	0	0	30	1	0	0	1	2	0	2	10	0
West Virginia	33	20	21	0	36	147	52	88	7	10	1	10	12
Middle Atlantic	2,122	3,121	1,740	1,309	3,049	5,595	5,842	6,441	3,786	6,285	4,099	5,228	7,757
Virginia	46	904	593	2,051	2,332	1,903	1,536	1,019	1,099	1,141	1,212	1,136	916
North Carolina	17	[2] 1,500	1,231	1,889	10,459	9,862	9,511	8,026	31,086	12,224	9,341	15,004	9,169
South Carolina	82	149	933	189	432	2,556	1,432	2,485	1,916	6,020	2,419	1,813	1,568
Georgia	385	30	670	591	4,195	2,334	4,549	2,134	2,339	1,369	1,379	1,902	2,125
Florida	88	390	98	1,290	1,840	3,670	1,602	1,961	2,446	2,244	814	794	2,377
South Atlantic	618	2,973	3,525	6,010	19,259	20,325	18,630	16,525	38,886	22,998	15,165	20,649	16,155
Ohio	22	1,634	604	528	1,617	2,536	3,192	3,087	1,420	2,642	2,327	1,583	1,548
Indiana	17	322	459	288	462	1,580	2,941	2,711	985	2,397	1,922	3,297	7,361
Illinois	12	41	132	308	458	1,134	1,354	1,081	373	1,039	607	594	1,559
Michigan	461	40	50	217	391	618	799	687	314	162	326	350	405
Wisconsin	249	0	47	11	231	225	374	360	247	201	3	41	120
East North Central	761	2,037	1,292	1,352	3,159	6,093	8,660	7,926	3,348	6,441	5,245	5,865	10,993
Minnesota	20	0	35	12	0	270	70	2	0	2	30	0	161
Iowa	1	0	0	0	75	1,584	36	861	149	170	476	110	345
Missouri	379	517	160	120	434	114	480	181	542	88	119	25	20
North Dakota	0	0	0	0	0	0	0	40	0	0	0	140	0
South Dakota	0	0	0	0	0	0	0	0	0	0	60	0	0
Nebraska	0	0	0	0	0	0	90	320	70	0	100	160	1
Kansas	0	0	0	0	121	30	60	80	0	1	60	0	1
West North Central	400	517	195	132	630	1,998	736	1,484	770	261	845	435	528
Kentucky	5	45	42	1,537	2,892	1,967	2,498	2,147	2,399	2,511	2,099	3,838	1,962
Tennessee	0	0	60	1,018	1,614	1,308	1,718	1,192	1,290	1,384	833	2,131	921
Alabama	3,324	[2] 1,000	117	1,193	1,091	880	275	1,613	563	3,055	806	437	347
Mississippi	7,445	9,818	43,862	23,627	28,103	27,362	26,324	1,885	10,234	11,946	30	12,981	7,499
East South Central	10,774	10,863	44,021	27,375	33,610	31,517	30,815	6,837	14,486	18,906	3,828	19,387	10,729
Arkansas	989	3,248	15,858	12,026	4,506	9,490	5,506	2,305	7,631	8,629	2,109	8,503	10,118
Louisiana	9,649	7,292	17,769	19,223	19,520	18,016	14,573	3,093	1,011	3,340	525	712	1,190
Oklahoma	0	0	0	0	0	70	0	70	30	36	0	0	0
Texas	550	742	0	632	1,991	716	631	806	5,886	1,744	1,728	2,856	785
West South Central	11,188	11,282	33,627	31,881	26,017	28,292	20,710	6,964	14,558	13,743	4,362	12,071	12,093
Montana	0	0	0	0	0	0	0	0	0	0	0	0	0
Idaho	0	0	0	0	0	0	0	30	0	40	0	129	667
Wyoming	0	0	0	0	0	0	10	0	0	0	0	0	0
Colorado	0	0	0	0	40	5	0	15	18	14	4	0	0
New Mexico	0	0	0	0	0	32	32	0	40	931	0	0	0
Arizona	0	0	0	0	699	1,434	2,226	1,339	740	247	809	339	461
Utah	0	0	0	0	0	0	0	0	0	0	0	0	0
Nevada	0	0	0	0	0	0	0	0	0	0	0	0	0
Mountain	0	0	0	0	739	1,471	2,268	1,384	798	1,232	812	468	1,128
Washington	5	0	0	0	268	203	114	132	311	268	141	99	118
Oregon	5	0	13	0	160	334	1,132	807	471	612	642	591	382
California	100	318	54	0	4,888	7,058	6,672	8,289	5,126	8,200	5,795	3,429	5,156
Pacific	110	318	67	0	5,316	7,595	7,918	9,228	5,908	9,080	6,578	4,119	5,656
Total	28,257	31,737	85,444	68,592	92,478	103,574	96,396	57,528	83,219	79,576	41,429	68,584	65,510

[1] Year ended June 30, 1934, Mehring and Smalley (*160*); 1942, State reports except where estimated; 1943–53 based on Branch surveys.

[2] Estimated.

TABLE 20.—*Calcium nitrate: Imports, and consumption as separate material in California, Florida, Mississippi, and other States and Territories, 1925–54*

Calendar year	Imports [1]	Consumption as separate material: California [2]	Florida [3]	Mississippi [4]	All other States and Territories [5]	Total [6]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1925	8,710	3,874	.....	.....	3,126	7,000
1926	15,072	4,700	.....	.....	8,300	13,000
1927	20,597	7,381	.....	.....	11,619	19,000
1928	26,113	9,660	.....	.....	15,340	25,000
1929	35,486	19,828	.....	.....	15,172	35,000
1930	49,136	12,450	.....	21,945	12,599	47,000
1931	32,212	5,709	.....	3,486	20,745	30,000
1932	7,683	3,632	.....	996	3,372	8,000
1933	10,389	4,332	.....	360	10,307	15,000
1934	35,732	9,324	[7] 6,208	3,003	14,465	33,000
1935	25,920	12,372	[8] 7,000	1,178	6,450	27,000
1936	41,392	19,025	[8] 10,000	3,913	5,062	38,000
1937	45,485	20,836	[8] 15,000	672	5,492	42,000
1938	31,759	16,327	[8] 16,000	151	3,522	33,000
1939	21,566	15,459	5,030	215	5,296	26,000
1940	1,542	2,737	5,089	0	174	8,000
1941	0	806	104	0	100	1,010
1942	0	19	11	0	0	30
1943	0	0	0	0	0	0
1944	5	0	0	0	5	5
1945	0	0	0	0	0	0
1946	3,900	2,209	0	0	105	2,314
1947	8,848	6,739	0	0	3,885	10,624
1948	9,761	8,152	0	0	1,482	9,634
1949	38,611	14,664	965	0	10,313	25,942
1950	44,329	22,770	3,263	0	6,120	32,159
1951	55,743	31,073	6,769	5,555	9,266	52,663
1952	39,466	24,551	10,364	2,926	13,994	51,835
1953	67,794	25,862	8,713	21	12,738	47,334
1954	68,637	26,050	10,126	.....	.....	.....

FOOTNOTES FOR TABLE 20:

[1] 1925–46, U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*280, 284*); 1947–54, U. S. Bureau of the Census (unpublished data and *288*).

[2] California Department of Agriculture (*38, 39, 40*).

[3] Florida Department of Agriculture (*61*), except as noted.

[4] 1930–50, Mississippi Department of Agriculture (*158*), for year ended June 30; 1951–53, based on Branch surveys.

[5] Difference between sum of figures in preceding 3 columns and the total.

[6] 1925–45, estimated; 1946–53, based on Branch surveys.

[7] Year ended June 30.

[8] Estimated.

TABLE 21.—*Potassium nitrate: Imports of fertilizer-grade material from various countries in stated years* [1]

Year [2]	British India	Chile [3]	Germany	All other	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*
1850	7,581	279	0	0	7,860
1860	8,441	1,575	66	0	10,082
1870	5,337	1,734	28	52	7,151
1880	6,567	16	35	459	7,077
1890	5,252	0	0	118	5,370
1900	4,830	0	336	0	5,166
1905	6,037	0	567	25	6,629
1910	5,653	0	225	6,648	12,526
1915	336	0	0	3	339
1920	4,834	13,615	57	310	18,816
1925	0	7,001	2,239	164	9,404
1926	0	8,697	1,801	48	10,546
1927	38	4,409	144	166	4,826
1928	0	9,979	445	411	10,835
1929	0	13,271	806	109	14,386
1930	0	10,759	3,198	641	14,599
1931	0	9,262	7,493	615	17,370
1932	35	4,833	13,573	674	19,115
1933	32	16,113	12,152	366	28,663
1934	502	25,300	9,606	0	35,408
1935	37	18,078	13,589	0	31,704
1936	874	47,630	17,437	0	65,941
1937	377	61,271	16,894	0	78,542
1938	588	44,493	14,060	0	59,141
1939	684	55,164	8,424	355	64,627
1940	0	56,016	1,275	33	56,324
1941	0	34,541	0	0	34,541
1942	0	14,272	0	0	14,272
1943	0	19,767	0	0	19,767
1944	0	9,407	0	0	9,407
1945	0	0	0	0	0
1946	0	4,406	0	0	4,406
1947	0	2,500	0	<1	2,501
1948	0	0	0	1	1
1949	0	6,502	0	1	6,803
1950	0	20,409	0	20	20,429
1951	8	11,958	2,736	<1	14,702
1952	0	[4] 27,814	9,100	5,265	42,179
1953	1	12,516	15,937	0	28,457
1954	0	13,228	732	0	13,960

[1] U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*275*), U. S. Bureau of the Census (*280, 284, 288*), and U. S. Treasury Department (*324*). General imports prior to 1934, and imports for consumption for 1934 and thereafter. Excludes imports of refined potassium nitrate, but includes nitrate of soda-potash.

[2] Year ended June 30, 1850 to 1915, and calendar year thereafter.

[3] 1850–70, includes Peru. Almost entirely nitrate of soda-potash containing about 15 percent K_2O.

[4] In 1952, the U. S. Bureau of the Census (*288*) records imports of 11,354 tons of crude potassium nitrate, valued at $439,205, and 16,460 tons of potassium-sodium nitrate mixtures, valued at $830,693, from Chile. It is conceded that the latter was potassium-sodium nitrate (nitrate of soda-potash), but, inasmuch as the value of potassium nitrate was considerably higher than that of nitrate of soda-potash, it appears likely that the material listed as potassium nitrate is also nitrate of soda-potash.

TABLE 22.—*Sodium nitrate: Foreign trade and consumption, decennial years 1870–1910 and annually 1915–54*

Calendar year	Imports [1]	Exports of domestic material [2]	Re-exports of Chilean material [1 2]	Consumption			
				In Hawaii and Puerto Rico [3]	In continental United States		Total [6]
					As separate material [4]	In mixed fertilizers [5]	
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*1,000 tons*
1870	[7] 15,561	0	[7] 41	-------	-------	-------	4
1880	[7] 34,021	0	[7] 770	-------	-------	-------	10
1890	[7] 102,382	0	[7] 1,758	-------	-------	-------	21
1900	[7] 206,470	0	[7] 3,863	-------	20,000	[8] 17,203	37
1910	592,673	0	[7] 7,503	17,756	80,000	146,000	244
1915	646,374	0	[7] 16,144	22,354	130,000	150,000	302
1916	1,364,463	0	[7] 37,065	26,182	150,000	210,000	386
1917	1,728,399	0	[7] 60,985	35,672	180,000	285,983	502
1918	2,066,615	0	[7] 62,154	38,267	170,000	234,794	443
1919	456,354	0	13,673	38,706	190,000	130,683	359
1920	1,480,519	0	22,197	63,451	230,000	190,000	483
1921	413,474	0	37,027	34,568	140,000	100,000	275
1922	607,560	0	14,601	37,092	170,000	120,000	327
1923	998,680	0	13,076	69,077	260,300	180,000	509
1924	1,105,001	0	8,512	51,023	320,000	210,000	581
1925	1,245,093	0	10,128	55,400	375,000	230,000	660
1926	1,024,014	0	8,376	63,551	338,000	188,000	590
1927	838,636	0	13,731	52,764	238,000	219,000	510
1928	1,155,860	0	20,187	59,791	364,000	226,000	650
1929	1,042,113	3,165	10,297	35,989	385,000	239,403	660
1930	636,825	28,630	11,140	50,460	462,000	73,000	586
1931	616,687	73,700	2,412	37,036	327,000	106,284	470
1932	56,482	185,000	1,239	7,361	75,000	96,000	178
1933	137,610	94,527	1,912	5,950	150,000	107,000	263
1934	328,750	104,731	1,223	5,638	301,000	79,000	386
1935	437,690	145,810	1,848	4,826	412,000	163,118	580
1936	529,015	133,734	3,304	3,881	520,000	107,000	631
1937	701,785	132,749	2,610	3,872	620,000	122,821	756
1938	646,386	157,948	5,869	3,444	572,000	104,000	679
1939	676,917	106,323	16,737	5,418	590,000	87,793	683
1940	744,151	141,657	18,282	19,177	658,000	81,000	758
1941	610,560	20,654	43,700	12,824	708,327	69,000	880
1942	899,150	48,705	130,015	13,979	561,420	69,000	644
1943	761,165	6,740	32,089	10,028	807,047	68,000	885
1944	713,004	11,435	7,833	0	830,401	45,000	875
1945	849,888	12,229	6,086	23,883	845,805	37,000	907
1946	540,870	16,240	4,815	465	635,860	45,000	681
1947	556,525	19,920	3,768	507	469,458	56,133	526
1948	720,903	17,100	1,075	889	606,454	50,000	657
1949	675,543	3,714	685	0	597,695	48,000	646
1950	615,674	35,222	1,163	150	685,172	45,000	730
1951	725,980	43,669	890	150	671,847	30,000	702
1952	675,320	9,441	50	200	678,661	30,000	709
1953	568,873	24,209	50	200	615,444	25,000	672
1954	731,530	25,316	-------	-------	[7] 652,983	-------	-------

[1] U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*275*), and U. S. Bureau of the Census (*280, 284, 288*).

[2] 1929–42, estimated from exports of chemical nitrogenous materials, n.e.s., from the Virginia custom district and exports of fertilizer material from James River points below Richmond and above Newport News, Va., U. S. Office of Chief of Engineers, U. S. Army (*811*); 1943–54, U. S. Bureau of the Census (*280, 284, 287*).

[3] 1910–48, sum of the imports plus shipments from the mainland (*270, 275, 280, 284*); 1949–53, estimated.

[4] 1900–40, partly estimated and partly from State reports; 1941–54, based on Branch surveys.

[5] 1899, 1919, 1929, 1931, 1935, 1937, 1939, and 1947, U. S. Bureau of the Census (*276*); 1917–18, Goldenweiser (*66*); other years, estimated. For 1899, 1919, and 1929 a part of the sodium nitrate used by the fertilizer industry was consumed in niter pots in the manufacture of sulfuric acid; these quantities have been deducted.

[6] Sum of the preceding 3 columns for 1931, 1935, 1937, 1939, and 1947; other years partly estimated.

[7] Year ended June 30.

[8] 1899.

TABLE 23.—*Sodium nitrate: Consumption as separate material, by regions and States, 1930–53* [1]

State and region	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Maine	[2] 5,000	[2] 3,000	[2] 1,500	[2] 2,500	[2] 2,000	[2] 1,500	[2] 800	[2] 1,000	[2] 800	366	[2] 1,600	490	439	733	813	747	744	576	831	733	414	392	289	272
New Hampshire	[2] 700	[2] 300	[2] 200	[2] 300	[2] 503	[2] 500	[2] 450	[2] 400	[2] 300	336	539	285	877	705	823	899	668	550	619	187	334	76	99	183
Vermont	150	110	100	180	131	276	238	242	153	162	106	196	209	98	162	131	151	290	289	199	139	120	64	84
Massachusetts	4,364	2,555	1,757	2,597	2,238	2,651	3,279	3,776	3,256	3,052	3,022	3,149	2,892	3,213	2,795	3,635	3,097	2,407	3,264	2,640	1,755	1,665	1,284	1,207
Rhode Island	[2] 500	[2] 250	[2] 200	[2] 300	[2] 403	[2] 400	320	[2] 400	[2] 300	314	360	311	245	248	373	324	234	178	283	221	172	153	133	132
Connecticut	[2] 2,500	[2] 1,500	[2] 800	[2] 1,200	[2] 1,449	[2] 1,700	[2] 2,000	[2] 2,500	[2] 2,000	1,910	1,284	1,285	1,416	2,084	2,327	2,505	2,297	1,961	2,236	1,906	1,540	1,017	811	931
New England	13,214	7,715	4,557	7,077	6,864	7,027	7,687	8,318	6,809	6,190	6,961	6,116	6,076	7,084	7,293	8,241	7,391	5,952	7,522	5,286	4,354	3,423	2,680	2,829
New York	[2] 5,009	[2] 3,009	[2] 1,200	[2] 1,500	[2] 5,805	[2] 4,003	[2] 3,000	[2] 8,000	[2] 7,030	[2] 7,649	7,396	8,607	10,327	14,150	16,151	15,013	12,445	9,932	11,952	8,890	5,448	6,209	6,991	8,127
New Jersey	[2] 4,000	[2] 3,000	[2] 1,300	[2] 1,000	[2] 4,245	[2] 4,000	[2] 3,500	3,421	[2] 3,000	[2] 3,441	11,370	3,718	8,133	4,133	5,088	4,833	4,825	3,769	4,859	4,171	3,069	3,062	3,394	3,389
Pennsylvania	3,529	2,406	864	437	3,294	828	110	96	337	120	149	2,342	1,838	3,709	3,532	2,594	2,505	1,632	1,950	2,510	2,271	2,223	2,434	2,554
Delaware	[2] 400	[2] 250	[2] 100	[2] 200	[2] 364	[2] 300	[2] 300	325	309	559	309	500	252	702	690	845	459	339	460	459	279	314	405	613
District of Columbia	50	25	10	25	35	30	35	40	45	55	60	45	101	13	17	87	69	77	84	105	84	86	54	3,859
Maryland	2,094	1,113	472	408	2,645	276	803	433	1,076	704	5,533	5,851	3,813	2,321	1,427	5,814	3,481	3,441	4,373	3,517	3,052	2,983	4,839	88
West Virginia	[2] 1,000	[2] 897	[2] 400	[2] 309	[2] 1,337	982	1,100	1,600	1,500	695	880	1,257	827	847	1,520	2,006	957	1,022	1,276	932	781	1,428	1,735	1,753
Middle Atlantic	16,073	10,594	4,346	3,870	17,725	10,416	8,845	13,917	13,258	13,226	25,603	22,290	25,000	25,875	31,535	31,083	24,732	20,291	24,954	20,500	14,982	16,305	19,852	20,383
Virginia	[2] 6,000	[2] 5,009	[2] 3,000	[2] 4,000	[2] 6,195	[2] 10,000	[2] 15,000	[2] 24,000	[2] 19,003	[2] 17,500	[2] 23,005	[2] 30,000	13,715	24,562	28,372	28,724	19,884	16,494	24,950	30,863	32,356	31,907	36,031	30,754
North Carolina	[2] 125,000	123,110	13,921	[2] 38,000	[2] 65,311	91,925	[2] 100,000	111,709	112,561	103,725	107,233	118,490	70,539	146,964	157,551	153,305	95,687	77,861	113,573	141,090	176,621	181,433	154,195	138,274
South Carolina	[2] 70,000	[2] 65,000	[2] 10,000	[2] 33,000	[2] 44,505	[2] 67,000	[2] 130,000	[2] 140,000	[2] 106,000	111,200	123,673	136,536	79,710	154,769	134,999	134,244	97,234	75,167	105,646	102,210	109,352	97,993	90,966	90,993
Georgia	[2] 45,000	[2] 42,800	[2] 15,000	[2] 25,000	[2] 38,877	[2] 67,000	[2] 110,000	[2] 135,000	[2] 105,000	[2] 113,003	[2] 127,009	[2] 137,093	70,919	138,326	136,547	134,246	99,340	80,570	87,255	93,582	100,498	96,541	93,797	89,736
Florida	[2] 6,000	[2] 5,000	[2] 3,000	[2] 5,000	[2] 7,525	[2] 9,000	[2] 12,000	[2] 15,000	[2] 10,000	8,508	12,492	20,470	9,792	15,129	8,108	16,590	14,336	12,262	13,112	13,302	14,007	14,893	15,356	16,000
South Atlantic	252,009	240,910	44,924	105,080	162,497	267,925	367,000	425,709	352,561	351,233	393,400	442,506	244,674	479,740	465,577	467,112	326,481	242,354	344,536	371,047	432,834	402,767	392,845	365,767
Ohio	[2] 2,000	1,915	1,231	1,150	1,110	1,182	1,104	1,016	1,149	1,359	1,003	1,281	993	1,222	1,809	2,183	2,357	1,068	1,439	2,097	1,384	1,598	2,238	1,589
Indiana	614	1,362	122	157	395	435	581	686	530	740	514	1,071	533	431	527	1,158	930	421	586	518	554	1,128	1,519	447
Illinois	157	623	185	185	660	310	396	355	363	254	279	529	497	740	919	1,174	1,527	616	868	426	164	872	544	407
Michigan	903	609	661	600	539	379	953	226	417	859	535	975	472	1,665	1,901	2,526	1,466	1,124	852	1,045	898	699	1,161	986
Wisconsin	71	54	0	87	159	159	84	36	90	57	63	32	79	227	143	266	505	214	108	137	35	1	11	3
East North Central	3,745	4,563	2,197	2,188	2,863	2,465	3,118	2,319	2,549	3,269	2,394	3,888	2,574	3,685	5,361	7,301	6,798	3,443	3,852	4,223	3,035	4,296	5,473	3,432
Minnesota	37	21	15	10	24	37	25	15	37	38	20	7	0	21	0	0	0	6	10	0	0	0	1	6
Iowa	151	10	8	5	19	18	18	30	36	29	35	23	3	2	20	11	31	10	40	0	0	0	0	0
Missouri	139	92	69	35	132	140	108	90	128	156	147	185	54	153	149	203	173	160	155	188	236	500	460	251
North Dakota	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	2	0
South Dakota	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155	0	0	0	0	0	0	0
Nebraska	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	40	0	0	30	0	0	0	0	0
Kansas	4	2	1	1	1	1	1	2	1	0	0	0	11	34	49	14	0	0	0	3	2	1,131	23	21
West North Central	195	125	114	51	176	195	152	137	202	227	202	215	57	197	203	309	373	176	235	191	238	1,631	566	278
Kentucky	[2] 500	[2] 100	[2] 200	450	610	550	569	[2] 2,000	1,089	1,086	1,435	1,187	628	1,370	1,611	1,979	2,227	1,103	1,364	1,176	1,988	1,924	2,253	4,043
Tennessee	[2] 1,000	[2] 500	[2] 300	[2] 1,000	[2] 2,907	[2] 4,009	[2] 5,000	[2] 17,000	[2] 13,000	12,600	11,500	[2] 19,000	10,525	17,463	19,256	21,180	17,630	11,420	12,217	13,312	18,498	15,301	19,895	18,707
Alabama [3]	68,712	25,503	9,353	16,536	71,114	65,485	52,071	72,416	100,654	107,093	96,305	[2] 119,000	70,953	96,246	113,133	103,730	91,809	67,267	78,007	72,827	94,353	115,746	97,966	95,127
Mississippi [3]	56,411	17,188	1,942	6,448	18,644	28,711	45,025	48,042	49,114	50,559	54,764	91,606	77,936	97,487	91,729	96,674	86,551	65,738	73,605	64,561	58,952	56,716	62,732	48,525
East South Central	126,623	43,291	11,795	24,434	93,275	101,749	102,685	139,458	154,846	171,343	163,999	230,793	160,272	212,596	225,729	228,573	188,217	145,528	165,393	154,876	173,782	189,687	182,545	166,490

Arkansas [6]	16,833	3,962	477	600	1,605	3,891	[3] 5,000	7,273	7,866	7,796	13,029	18,098	11,086	15,259	20,472	19,051	17,739	14,187	18,042	13,613	23,100	17,956	37,847	25,474
Louisiana [7]	23,305	9,885	1,868	3,273	11,210	13,007	20,448	25,646	27,518	25,148	29,617	30,158	24,392	33,225	38,836	42,029	37,214	19,484	22,923	16,323	28,188	20,756	30,768	26,254
Oklahoma	40	25	27	25	19	34	55	30	30	23	13	108	10	99	140	415	491	103	87	188	132	168	226	260
Texas [7]	3,732	1,299	726	624	1,116	1,146	1,080	1,314	1,048	1,098	1,641	1,742	2,732	4,976	3,114	5,801	7,549	1,253	1,603	1,972	2,209	2,667	2,943	1,925
West South Central	43,910	15,171	3,098	4,522	13,970	18,078	26,581	34,263	36,452	34,065	44,300	50,105	38,220	54,559	62,562	67,296	62,903	35,027	42,555	32,096	51,629	50,557	71,954	53,933
Montana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	15	39	44	18	0	0	0	0	0
Idaho	0	0	0	0	[3] 1	[3] 5	[3] 10	[3] 20	[3] 25	[3] 100	[3] 100	[3] 200	579	430	432	493	326	397	70	40	0	0	0	3
Wyoming	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Colorado	0	0	0	0	[3] 4	[3] 5	15	[3] 30	[3] 30	50	[3] 50	[3] 50	50	40	19	433	17	93	81	67	120	17	3	40
New Mexico	0	1	0	2	0	0	0	0	1	0	6	0	40	0	0	20	20	0	50	110	21	0	0	11
Arizona	[3] 100	[3] 50	[3] 20	[3] 30	[3] 150	[3] 150	[3] 170	[3] 200	230	401	1,340	2,418	4,926	1,705	2,234	5,663	2,607	2,063	2,217	1,598	1,798	1,804	1,374	1,464
Utah	0	0	0	0	0	0	0	0	5	10	0	10	0	26	31	13	48	42	14	0	0	0	0	0
Nevada	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	167	80	98
Mountain	100	51	20	32	175	160	195	250	291	561	1,505	2,678	5,595	2,211	2,726	6,627	3,058	2,639	2,450	1,833	1,939	1,786	1,457	1,616
Washington	[3] 1,000	910	[3] 200	[3] 250	[3] 326	[3] 400	[3] 600	[3] 700	[3] 800	[3] 1,400	[3] 2,000	3,800	4,650	2,718	1,702	2,478	1,560	1,415	1,649	1,265	672	357	354	332
Oregon	[3] 300	[3] 200	[3] 109	[3] 200	[3] 227	[3] 300	[3] 300	[3] 200	[3] 200	[3] 300	[3] 1,500	1,731	1,410	1,883	1,562	1,567	2,118	1,313	1,325	892	741	112	43	5
California	4,929	3,690	3,524	2,497	2,714	3,496	2,943	3,692	4,074	5,344	16,040	34,195	72,890	16,539	26,121	25,215	12,119	11,320	11,983	5,488	950	924	651	466
Pacific	6,229	4,800	3,824	2,947	3,267	4,195	3,843	4,592	5,074	7,044	19,540	39,736	78,950	21,140	29,415	29,260	15,797	14,048	14,957	7,645	2,372	1,393	1,048	803
Total	462,089	327,220	74,875	150,121	309,722	412,241	519,506	628,063	572,074	590,158	657,679	798,327	581,420	807,647	830,401	945,805	635,860	469,458	606,454	597,605	585,172	671,847	676,581	615,444

[1] Calendar years except as noted. 1934 and 1939, largely based on National Fertilizer Association surveys (*146, 150*); 1942, unpublished survey made in the U. S. Office for Agricultural War Relations; 1941 and 1943–53, based on Branch surveys; other years, from State publications except where estimated.

[2] Estimated.

[3] Year ended June 30.

[4] 1930 to 1940, inclusive, year ended Sept. 30.

[5] 1939, Feb. 1–Nov. 15; 1934 to 1941, inclusive, year ended June 30.

[6] 1930 to 1941, inclusive, year ended June 30.

[7] 1930 to 1941, inclusive, year ended Aug. 31.

TABLE 24.—*Urea: Production, imports, and consumption as fertilizer, 1930–54* [1]

Calendar year	Production			Imports [4]	Consumption as fertilizer [5]
	Industrial materials [2]	Fertilizer materials [3]			
		Solid forms	Urea–ammonia liquor		
	Tons	*Tons*	*Tons*	*Tons*	*Tons*
1930	----------	----------	----------	8,884	8,000
1931	----------	----------	----------	7,987	5,000
1932	----------	----------	----------	4,288	1,000
1933	----------	----------	----------	6,788	1,500
1934	----------	----------	6,000	6,020	2,000
1935	800	----------	9,000	4,495	3,000
1936	3,900	1,000	15,000	3,620	4,000
1937	7,500	5,000	18,000	2,699	6,000
1938	5,000	12,000	16,000	1,760	16,000
1939	10,000	30,000	17,000	936	24,000
1940	15,000	45,000	20,000	0	34,000
1941	25,000	31,000	19,000	0	37,000
1942	24,300	21,000	14,000	0	20,000
1943	38,360	26,000	22,000	0	23,000
1944	35,550	17,000	25,000	45	20,000
1945	36,000	14,000	21,000	0	15,000
1946	44,000	15,000	23,000	918	14,000
1947	47,000	17,000	23,000	1,268	17,000
1948	>60,000	20,000	27,000	9,521	20,000
1949	----------	50,000	----------	2,080	30,000
1950	----------	----------	----------	13,731	----------
1951	----------	----------	----------	22,575	----------
1952	----------	----------	----------	30,005	----------
1953	----------	----------	----------	87,975	----------
1954	----------	----------	----------	72,770	----------

FOOTNOTES FOR TABLE 24:

[1] In terms of urea except for imports which include Calurea.
[2] Skeen (*231*).
[3] Estimated.
[4] U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*280, 284, 288*). Includes Calurea.
[5] Includes Territories. Crystal urea, Uramon, Ureor, Nu-Green, and other urea products except the urea content of Calurea or urea–ammonia liquors. 1930–36, Mehring (*134*); 1937–40, Merz and Brown (*156*); other years, estimated.

Natural Organic Materials

TABLE 25.—*Castor pomace: Total production, imports, and consumption as fertilizer, selected years 1889–1920 and annually 1925–54*

Calendar year	Production [1]	Imports [2]	Consumption [3]
	Tons	*Tons*	*Tons*
1889	[4] 1,600	----------	3,000
1899	[4] 4,700	----------	5,000
1909	[4] 10,709	----------	17,000
1920	15,121	----------	23,000
1925	26,026	----------	34,000
1926	27,934	----------	28,500
1927	29,088	----------	31,000
1928	38,218	----------	40,000
1929	43,489	----------	45,000
1930	27,239	----------	40,000
1931	28,642	----------	38,000
1932	22,278	----------	32,000
1933	25,786	----------	41,000
1934	24,082	20,178	44,000
1935	26,719	22,311	49,000
1936	35,004	22,357	57,000
1937	36,721	16,001	54,000
1938	30,071	16,503	47,000
1939	43,404	25,570	69,000
1940	57,781	7,053	65,000
1941	89,327	36	89,000
1942	84,753	41	85,000
1943	65,818	80	60,000
1944	89,381	40	89,000
1945	79,759	357	80,000
1946	50,891	322	51,000
1947	65,624	110	53,811
1948	75,298	0	84,000
1949	[5] 73,182	4,900	80,000
1950	[5] 73,133	9,354	82,000
1951	[5] 46,041	16,202	62,000
1952	[5] 42,487	15,126	58,000
1953	[5] 38,523	12,560	51,000
1954	[5] 35,351	5,406	----------

FOOTNOTES FOR TABLE 25:

[1] Except otherwise noted, production is 95 percent of the difference between the weights of castorbeans crushed and of oil produced (*282*). Continental United States.
[2] U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*280, 284, 288*); 1889–1933, castor pomace not classified separately. Includes the Territories.
[3] Estimated except for 1947. Goldenweiser (*66*) reported that 19,948 and 38,481 tons were used in 1917 and 1918, respectively, in mixed fertilizers. In 1947, 5,027 tons were used as separate material (based on Branch survey) and 48,784 tons in mixed fertilizers (*270*). The quantities used as separate materials in the years ended June 30, 1948–*52* were 5,051, 8,810, 10,428, 6,639, and 5,986, respectively (Branch surveys). Includes the Territories.
[4] Estimated from production of castor oil (*278*).
[5] Actual production, U. S. Bureau of the Census (*282*).

TABLE 26.—*Cottonseed meal: Total production and consumption by uses, every fifth year 1900–45 and annually 1946–53*

Year [1]	Production [2]	Consumption			
		As fertilizer on cotton farms [3]	As commercial fertilizer		Total fertilizer [4]
			As separate material [4]	In mixed fertilizers [5]	
	1,000 tons	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*
1900	884			146	240
1905	1,360			183	424
1910	1,326			350	442
1915	2,648			300	641
1920	1,817			200	447
1925	2,125	220	10	100	339
1930	2,232	132	25	58	215
1935	1,614	83	11	49	143
1940	1,882	68	28	20	115
1945	1,954	34	10	19	63
1946	1,434	19	18	29	66
1947	1,363	21	29	30	80
1948	1,898		10	30	40
1949	2,391		13	30	50
1950	2,555		14	30	60
1951	1,609		10	20	40
1952	2,548		12	25	37
1953	2,672		12	25	37

[1] See other footnotes.
[2] Year ended July 31. U. S. Department of Agriculture (*207, p. 812*; *298*). For additional information for the years 1918 to 1936, inclusive, see Zimmerman (*546*).
[3] Includes the Territories. Year ended July 31. Rasor and Minor (*207*).
[4] Continental United States. Year ended June 30. 1925–40, State reports; 1945–53, Branch surveys.
[5] Includes the Territories. Calendar year. 1900, 1905, 1925, Mehring and Peterson (*149*); 1935, 1947, "Census of Manufactures" (*276*); other years, estimated. For State data for each year 1927 to 1938, inclusive, see the National Fertilizer Association annual cottonseed meal reports (*171*).
[6] Calendar year. Estimated from data in preceding columns.

TABLE 27.—*Cottonseed meal: Returned to grower for fertilizer use, by States, years ended July 31, 1930, 1935, 1940, and 1945–47* [1]

State	1930	1935	1940	1945	1946	1947
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Virginia	420	450	120	240	40	320
North Carolina	28,980	35,490	19,000	10,870	6,920	9,740
South Carolina	39,600	19,300	18,980	11,750	2,630	5,620
Georgia	17,340	8,480	8,180	1,600	4,290	1,780
Florida	3,000	650	520	300	100	80
Tennessee	1,180	370	510	420	270	310
Alabama	12,520	5,980	3,060	2,700	1,420	940
Mississippi	3,570	2,800	5,510	1,990	960	850
Arkansas	2,920	1,180	3,530	1,570	650	530
Louisiana	4,140	1,120	3,040	1,000	820	210
Oklahoma	460	310	660	260	120	110
Texas	17,930	6,950	4,730	1,070	750	690
Total	132,060	83,080	67,940	33,870	18,970	21,180

[1] 1930–46, Rasor and Minor (*207*); 1945–47, unpublished data supplied by Ella Sue Minor of the U. S. Bureau of Agriculture Economics.

TABLE 28.—*Dried blood: Total production, imports, and consumption as fertilizer, selected years 1880–1953*

Calendar year	Production [1]	Imports [2]	Consumption		Calendar year	Production [1]	Imports [2]	Consumption	
			As separate material [3]	In mixed fertilizers [4]				As separate material [3]	In mixed fertilizers [4]
	Tons	*Tons*	*Tons*	*Tons*		*Tons*	*Tons*	*Tons*	*Tons*
1880	5,000			5,000	1936	63,800	11,283	2,800	3,000
1890	19,800		2,000	17,800	1937	67,300	13,735	3,000	3,000
1900	33,100		1,600	31,000	1938	68,600	6,401	2,900	2,500
1910	[5] 41,551	5,500	2,000	47,000	1939	71,100	15,509	2,800	2,000
1914	[5] 40,874	9,100	2,500	44,500	1940	77,300	13,031	2,500	
1917	[6] 32,007	5,900	[6] 3,126	[6] 37,189	1941	79,300	18,779	2,100	
1920	48,300	7,000	3,000	30,000	1942	87,900	4,105	762	
1925	61,400	11,413	2,500	20,000	1943	94,900	5,071	569	
1926	54,700	12,781	1,500	16,000	1944	102,500	17,684	813	
1927	53,300	13,432	1,700	15,000	1945	94,600	2,755	836	
1928	60,500	9,511	2,000	13,000	1946	90,500	483	726	
1929	63,100	10,947	2,500	[7] 12,651	1947	97,300	4,109	1,057	
1930	62,600	12,693	3,500	11,800	1948	86,800	3,355	1,090	
1931	63,000	9,895	8,500	15,000	1949	87,200	3,303	1,178	
1932	61,000	4,188	5,000	17,000	1950	88,900	2,183	1,250	
1933	65,400	7,146	4,000	12,000	1951	86,900	3,806	1,457	
1934	79,800	4,174	3,000	5,000	1952	94,403	2,690	1,783	
1935	61,000	10,101	2,700	3,800	1953		3,973	1,731	

[1] Estimated, except as otherwise noted, on the basis that in 1880 25 percent of the blood from animals slaughtered in commercial plants was processed and that the percentages increased to 50 percent in 1890, 67 percent in 1900, 75 percent in 1910, and 80 percent since. The yield of dried blood when all the blood is processed averages as follows: Cattle, 7 pounds; calves, 0.75 pounds; sheep and goats, 0.50 pounds; and swine, 1.2 pounds per animal. The numbers of animals slaughtered are given in "Agricultural Statistics" (*298*).
[2] 1925–53, U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*284*); other years, records of the U. S. Bureau of the Census.
[3] Includes the Territories. 1880–1941, estimated except as otherwise indicated; 1942–53, based on Branch surveys.
[4] Continental United States. Estimated unless otherwise indicated.
[5] U. S. Federal Trade Commission (*500*).
[6] Goldenweiser (*66*).
[7] U. S. Bureau of the Census (*276*).

TABLE 29.—*Fishery byproducts: Production by kind, imports of fertilizer-grade fish scrap, and consumption of fish scrap as fertilizer, decennial years 1850–1920 and annually 1920–53*

Calendar year	Production [1]							Imports of fish scrap [9]	Consumption of fish scrap		
	Fish pomace [2]	Acidulated fish scrap [3]	Dried menhaden scrap [4]	Crab scrap [5]	Shrimp scrap [6]	Total fertilizer-grade scrap [7]	Total scrap for feed and fertilizer [8]		As separate material [10]	In mixed fertilizers [11]	Total [12]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1850	8,000	0	2,000	----------	----------	10,000	10,000	----------	----------	----------	10,000
1860	15,000	1,000	5,000	500	----------	21,500	21,500	----------	----------	----------	21,500
1870	20,000	1,000	20,000	2,500	----------	43,500	43,500	----------	----------	----------	43,500
1880	14,000	5,000	25,800	1,950	----------	52,000	52,000	----------	----------	----------	52,000
1890	5,000	16,000	20,330	2,000	250	51,000	51,000	----------	----------	----------	51,000
1900	2,000	28,000	24,000	800	112	62,000	65,000	----------	15,000	28,977	44,000
1910	1,500	25,000	40,000	4,000	350	71,000	78,000	----------	20,000	60,000	80,000
1920	1,000	49,600	41,674	571	600	100,000	121,000	----------	30,000	70,000	100,000
1921	1,810	44,804	32,402	1,000	828	86,000	107,273	----------	20,000	65,000	85,000
1922	300	25,755	60,649	1,000	562	93,000	116,166	----------	15,000	75,000	90,000
1923	1,593	44,035	33,448	1,000	1,269	87,000	113,885	----------	13,000	72,000	85,000
1924	4,097	24,400	19,258	1,200	936	54,000	81,297	----------	10,000	45,000	55,000
1925	5,787	41,463	25,887	1,300	1,079	78,000	118,062	----------	18,500	70,000	88,000
1926	6,456	23,553	18,507	1,200	1,036	56,000	92,974	----------	12,000	43,000	55,000
1927	1,980	19,984	19,430	1,400	1,427	50,000	91,866	----------	18,500	36,500	55,000
1928	4,067	20,028	16,693	1,500	1,726	49,000	104,519	----------	15,000	51,000	66,000
1929	4,540	23,089	24,189	1,468	2,000	58,000	142,681	----------	16,000	64,215	80,000
1930	3,362	15,725	22,666	2,899	2,000	50,000	126,695	[13] 16,074	15,500	58,500	74,000
1931	917	8,771	18,185	3,178	1,000	45,655	84,183	43,061	16,300	43,579	60,000
1932	86	6,841	32,382	950	500	45,000	102,423	24,422	23,000	26,000	49,000
1933	693	9,981	24,768	842	600	44,817	129,991	29,709	21,000	29,000	50,000
1934	----------	22,051	32,233	1,513	800	58,000	197,424	39,899	15,000	62,000	77,000
1935	----------	29,890	25,364	2,538	500	61,326	212,403	31,193	28,000	83,881	112,000
1936	----------	23,482	34,834	2,015	300	62,802	243,778	48,969	18,000	65,000	83,000
1937	----------	31,600	22,763	1,736	200	59,618	219,942	27,516	17,000	98,189	115,000
1938	----------	21,814	26,096	1,770	200	52,379	205,216	7,801	12,000	45,000	57,000
1939	1,677	15,853	29,896	1,433	100	48,959	226,102	13,467	10,000	39,067	49,000
1940	0	15,520	47,354	546	----------	64,988	191,661	7,728	9,000	25,000	34,000
1941	----------	11,029	53,978	1,530	----------	68,971	235,844	1,483	8,000	41,000	49,000
1942	1,553	2,594	26,208	3,678	----------	34,656	171,080	424	4,000	8,000	12,000
1943	1,538	1,555	44,230	2,588	----------	50,668	190,403	264	2,010	4,000	6,000
1944	----------	2,022	44,518	1,926	----------	52,173	213,147	869	2,700	4,000	7,000
1945	----------	1,557	----------	----------	----------	----------	200,075	847	2,527	8,000	11,000
1946	----------	2,022	----------	----------	----------	----------	199,621	1,248	2,801	7,000	10,000
1947	----------	632	----------	----------	----------	----------	186,440	1,980	2,162	8,588	11,000
1948	----------	----------	----------	----------	----------	----------	199,519	5,208	3,071	8,000	11,000
1949	----------	----------	----------	----------	----------	----------	237,180	5,198	1,804	5,000	7,000
1950	----------	----------	----------	----------	----------	----------	239,924	8,433	2,341	6,000	8,000
1951	----------	----------	----------	----------	----------	----------	209,756	29,979	1,933	10,000	12,000
1952	----------	----------	----------	----------	----------	----------	221,403	32,860	1,045	----------	----------
1953	----------	----------	----------	----------	----------	----------	238,851	18,960	977	----------	----------

[1] Except as otherwise noted: 1850-70, estimated from data in the "Census of Manufactures" (*276*); 1880-1953, U. S. Bureau of Fisheries (*268, 269*) and U. S. Fish and Wildlife Service (*305, 306*).

[2] Ground residue from which fish oil has been pressed or extracted. Most of it was used as fertilizer without either acidulation or drying.

[3] Used only in the manufacture of mixed fertilizer.

[4] Prior to 1939 practically all menhaden scrap was used as fertilizer. The grades fit for feed were reported separately as meal. After 1939 the quality of menhaden scrap was improved and considerable quantities of this were also used as feed. For production of dried and crude, or acidulated, menhaden scrap, 1873-98, see the 1902 Report of the Commissioner of Fisheries (*268, p. 258*) and for later data the 1951 report of the U. S. Fish and Wildlife Service (*306*).

[5] Includes blue and King crab and lobster scrap in the earlier years and dungeness crab scrap in more recent years. 1860-1928, partly estimated.

[6] 1890-1928, fit only for fertilizer use. 1929-39, estimates of that part of the total production (*269*) believed to have been used as fertilizer.

[7] That part not itemized in previous columns consists largely of pilchard, alewife, and salmon scrap. 1850–1930, 1932, and 1934, partly estimated; 1931 and 1933, U. S. Bureau of the Census (*276*).

[8] In general, scrap is used for fertilizer and meal for feed. Relatively small quantities of whale and seal tankage are included.

[9] Fertilizer-grade only. Large quantities were also imported as feed (*270, 280, 254, 288*). Considerable quantities were imported in some years before 1931, but the data were not reported separately.

[10] Includes the Territories. 1900–42, estimated; 1943–53, based on Branch surveys.

[11] Continental United States. Exclusive of crab and shrimp scrap, 1900, 1929, 1931, 1935, 1937, 1939, and 1947, U. S. Bureau of the Census (*276*); other years, estimated.

[12] 1850–90, Mehring (*134*); 1900–51, sum of preceding 2 columns rounded off.

[13] From June 18 to December 31.

TABLE 30.—*Guano: Imports, by countries, every fifth year 1850–1905 and annually 1905–53* [1]

Year [2]	Peru and Chile [3]	Mexico [4]	Newfoundland, Canada, and Falkland Islands [5]	British West Indies [6]	Europe [7]	All others [8]	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1850	6,440	0	0	157	0	6,552	13,149
1855	174,653	538	0	370	0	19,275	194,836
1860	43,511	10,937	0	5,049	607	19,207	79,311
1865	0	0	0	12,404	38	6,868	19,310
1870	49,424	0	0	4,010	176	989	54,599
1875	19,106	0	0	2,983	57	3,410	25,556
1880	448	10	0	3,394	0	5,578	9,430
1885	1,319	71	0	6,880	2,085	12,017	22,372
1890	0	1,248	0	1,092	1,384	5,720	9,444
1895	0	1,029	0	2,765	0	1,402	5,196
1900	1,288	959	200	1,385	336	1,159	5,327
1905	24,304	848	2,325	0	4,656	5,286	37,509
1906	8,035	2,345	1,424	6	637	7,878	20,325
1907	17,332	2,072	1,198	0	1,552	3,259	25,413
1908	25,312	2,845	1,165	0	442	1,231	30,995
1909	25,423	3,528	164	0	10,244	2,090	41,449
1910	14,302	4,086	1,002	0	31,252	7,968	58,610
1911	9,296	4,356	573	0	10,220	8,623	33,068
1912	20,334	1,540	1,053	0	12,024	3,320	38,871
1913	8,276	1,363	811	0	5,302	5,622	21,374
1914	0	766	1,079	0	21,479	1,199	24,523
1915	4,883	1,005	523	0	12,066	4,031	23,468
1916	7,840	618	399	2	1,856	7,032	17,747
1917	0	2,036	0	0	0	1,065	4,001
1918	0	4,666	76	1	3	4,455	9,201
1919	0	5,731	111	0	175	1,852	7,869
1920	9,192	4,684	1	0	45,018	1,350	60,245
1921	0	1,010	62	100	588	201	1,961
1922	[9] 0,700	[10] 1,044				3,834	14,578
1923	[9] 7,033					25,008	32,041
1924	13,008	660	112	0	4,372	9,532	28,284
1925	6,048	1,183	1,242	0	9,031	1,992	19,496
1926	3,780	417	3,062	0	4,244	1,571	13,074
1927	7,448	930	1,320	0	10,799	5,623	26,120
1928	4,592	346	2,001	0	11,087	7,268	25,294
1929	13,403	967	1,980	0	28,783	6,281	51,414
1930	16,167	592	1,992	10	20,392	6,130	45,283
1931	0	790	7,115	0	4,780	2,826	15,511
1932	26,235	217	0	0	0	687	27,139
1933	46,354	804	9,550	849	3,933	5,455	66,945
1934	14,594	1,347	1,440	0	0	1,254	18,635
1935	11,312	1,480	879	174	1,148	3,172	18,165
1936	17,752	1,941	628	717	1,441	3,061	25,540
1937	5,160	2,961	245	39	4,488	783	14,676
1938	13,216	367	379	0	0	3,061	17,023
1939	5,264	209	20	0	0	232	5,725
1940	0	668	112	100	0	0	880
1941	0	0	0	0	0	0	0
1942	0	302	446	0	0	2,755	3,503
1943	0	632	5,274	0	0	3,716	9,622
1944	2	135	333	0	0	4,419	4,889
1945	98	75	2,939	0	0	0	3,112
1946	0	0	588	0	0	1	589
1947	0	0	0	0	0	0	0
1948	0	31				1	32
1949	0	0	0	0	0	0	0
1950	34	12	44	0	0	28	118
1951	44	0	0	0	0	109	153
1952	44	0	0	0	0	21	65
1953	45	0	0	0	0	23	68

[1] 1850–1946, U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*275*), U. S. Bureau of the Census (*284*), and U. S. Treasury Department (*324*); 1947–53, code books, Foreign Trade Division, U. S. Department of Commerce. Reexports in the years ended June 30 were: 1850, 5; 1855, 66,740; 1860, 3,048; 1865, 1,533; 1870, 66; 1875, 81; 1880, 56; 1885, 11; 1890, 10; 1895, 7; 1900, 9; 1905, 2,041; 1910, 0; and 1915, 1 ton. No reexports have been reported since 1915.

[2] 1850 to 1917, inclusive, year ended June 30; 1918 to 1953, inclusive, calendar year.

[3] Imports consisted of bird guano.

[4] Imports consisted principally of bat guano with some bird guano.

[5] Imports consisted of whale tankage, commonly called whale guano.

[6] Imports consisted chiefly of phosphoguano, cf. table 53.

[7] Principally Norway, Great Britain, Netherlands, Germany, and Belgium.

[8] Principally Argentina, Cuba, Dutch West Indies, South Africa, Uruguay, and Venezuela.

[9] Export data of the Peruvian guano administration. U. S. import statistics were not given by countries in 1922 and 1923.

[10] "American Fertilizer Handbook 1924" (*333*).

TABLE 31.—*Manure, dried: Consumption as separate material, by regions and States and Hawaii, years ended June 30, 1939, and 1946–54* [1]

State and region and Hawaii	1939	1946	1947	1948	1949	1950	1951	1952	1953	1954
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	212	124	578	977	511	651	786	655	621	412
New Hampshire	127	78	237	114	135	405	129	128	160	165
Vermont	101	28	113	81	171	72	72	72	80	62
Massachusetts	1,558	1,049	1,799	1,528	1,455	1,989	2,135	2,340	2,162	1,862
Rhode Island	100	222	208	241	225	381	319	211	302	209
Connecticut	488	454	517	1,037	745	853	938	1,071	1,151	1,406
New England	2,589	1,955	3,452	3,978	3,242	4,351	4,379	4,477	4,476	4,116
New York	2,197	803	2,953	2,474	2,480	2,749	2,974	4,047	3,661	3,242
New Jersey	935	1,231	594	1,027	2,730	2,175	2,615	3,345	3,609	2,710
Pennsylvania	----------	1,868	2,653	2,589	2,350	3,949	3,814	3,695	3,509	2,940
Delaware	17	37	45	123	70	116	99	2,061	377	135
District of Columbia	118	137	284	201	237	181	204	238	172	114
Maryland	269	737	838	664	736	1,024	966	621	1,076	731
West Virginia	127	109	128	193	76	196	198	221	199	399
Middle Atlantic	3,663	4,922	7,495	7,871	8,678	10,990	10,870	14,228	12,603	10,271
Virginia	119	136	491	327	581	473	565	571	1,015	659
North Carolina	100	76	100	1,327	286	83	673	447	470	360
South Carolina	71	156	131	165	334	180	208	260	312	405
Georgia	103	170	275	416	726	587	808	1,025	732	899
Florida	1,873	1,507	3,040	1,776	1,460	1,048	1,025	882	1 · ?	734
South Atlantic	2,266	2,045	4,037	4,013	3,387	2,371	3,339	3,185	3,583	3,057
Ohio	440	290	709	619	788	1,555	1,641	1,150	1,357	1,179
Indiana	----------	471	409	517	373	990	430	523	723	1,045
Illinois	1,500	2,811	2,375	3,280	4,108	4,072	3,629	3,006	4,463	4,657
Michigan	464	1,451	1,138	890	975	1,222	1,034	894	2,011	2,973
Wisconsin	180	352	264	568	525	676	566	589	719	952
East North Central	2,584	5,375	4,895	5,874	6,769	8,215	7,302	6,162	9,273	10,806
Minnesota	42	510	380	513	728	648	1,207	879	815	525
Iowa	43	1	40	107	88	100	44	67	247	147
Missouri	415	603	679	565	648	664	477	1,469	837	990
South Dakota	2	5	----------	----------	----------	15	15	23	25	0
Nebraska	----------	----------	----------	18	101	78	27	166	508	1,761
Kansas	----------	61	176	369	167	199	216	78	277	291
West North Central	502	1,180	1,275	1,572	1,732	1,704	1,986	2,622	2,709	3,714
Kentucky	10	180	137	262	267	247	342	30	359	320
Tennessee	29	341	485	534	596	382	391	497	636	752
Alabama	----------	245	295	357	361	543	418	449	394	467
Mississippi	----------	----------	----------	10	14	33	29	18	32	19
East South Central	39	766	917	1,163	1,238	1,205	1,180	994	1,421	1,558
Arkansas	----------	2	11	6	19	19	29	32	63	49
Louisiana	10	66	21	69	90	56	150	156	205	156
Oklahoma	12	83	121	74	114	214	210	198	579	701
Texas	15	372	291	330	616	1,471	943	2,859	1,687	2,229
West South Central	37	523	444	479	839	1,760	1,332	3,245	2,534	3,135
Colorado	----------	109	----------	43	51	131	92	----------	10	426
New Mexico	----------	----------	----------	----------	----------	----------	35	20	1	33
Arizona	----------	130	20,981	17,532	1,952	2,058	825	2,499	2,322	1,589
Utah	----------	----------	----------	200	----------	300	25	47	110	207
Nevada	----------	----------	----------	----------	3	5	----------	----------	82	29
Mountain	----------	230	20,981	17,775	2,006	2,494	977	2,566	[3] 2,615	[3] 2,325
Washington	31	802	1,866	933	906	3,024	1,560	1,243	1,747	452
Oregon	14	415	----------	200	4	3	517	----------	430	425
California	[4] 20,000	30,519	44,070	55,972	105,880	130,000	150,000	160,000	165,724	220,000
Pacific	20,045	31,796	45,936	57,105	106,790	133,027	152,077	161,243	167,901	220,877
Continental United States	31,722	48,792	89,432	99,830	134,681	165,217	183,442	198,722	207,115	259,859
Hawaii	----------	----------	----------	----------	----------	2	8	4	12	9
Total	31,722	48,792	89,432	99,830	134,681	165,219	183,450	198,726	207,127	259,868

[1] Branch surveys. Material handled by the fertilizer industry.
[2] Includes consumption of 80 tons in Idaho and 10 tons in Wyoming.
[3] Includes consumption of 20 tons in Montana, 68 tons in Idaho, and 3 tons in Wyoming.
[4] Estimated.

TABLE 32.—*Manure, farmyard: Estimated total production, utilization on harvested crops, and primary-nutrient content, by regions and States, calendar year 1947* [1]

State and region	Production	Manure applied to harvested crops			
		Utilization	Primary-nutrient content		
			Nitrogen	Phosphoric oxide	Potash
	1,000 tons	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*
Maine	3,300	870	4.9	2.8	4.3
New Hampshire	1,700	400	2.2	1.3	2.0
Vermont	5,700	4,100	23.0	13.1	20.1
Massachusetts	3,000	1,700	9.5	5.4	8.3
Rhode Island	410	[2]320	[2]1.8	[2]1.0	[2]1.6
Connecticut	2,400	1,800	10.1	5.8	8.8
New England	16,510	[2]9,190	[2]51.5	[2]29.4	[2]45.1
New York	28,700	13,400	76.4	45.6	67.0
New Jersey	3,400	740	4.2	2.5	3.7
Pennsylvania	26,400	16,200	92.3	55.1	81.0
Delaware	1,100	530	3.0	1.8	2.7
Maryland	6,800	2,400	13.7	8.2	12.0
West Virginia	9,600	1,800	10.3	6.1	9.0
Middle Atlantic	76,000	35,070	199.9	119.3	175.4
Virginia	19,000	1,300	7.2	4.4	6.2
North Carolina	17,800	910	5.0	3.1	4.4
South Carolina	9,800	330	1.8	1.1	1.6
Georgia	24,900	640	3.5	2.2	3.1
Florida	18,200	310	1.7	1.1	1.5
South Atlantic	89,700	3,490	19.2	11.9	16.8
Ohio	43,500	14,400	83.5	53.3	70.6
Indiana	43,000	9,900	57.4	36.6	48.5
Illinois	69,500	26,000	150.8	96.2	127.4
Michigan	29,000	11,000	63.8	40.7	53.9
Wisconsin	57,000	28,000	162.4	103.6	137.2
East North Central	242,000	89,300	517.9	330.4	437.6
Minnesota	62,000	22,000	134.2	83.6	110.0
Iowa	115,000	12,400	75.6	47.1	62.0
Missouri	60,700	5,000	36.0	22.4	29.5
North Dakota	24,700	2,500	15.2	9.5	12.5
South Dakota	42,100	3,000	18.3	11.4	15.0
Nebraska	62,000	3,000	18.3	11.4	15.0
Kansas	51,800	1,500	9.2	5.7	7.5
West North Central	418,300	50,300	306.8	191.1	251.5
Kentucky	29,800	640	3.6	2.0	3.2
Tennessee	28,100	2,800	16.0	9.0	14.0
Alabama	24,300	210	1.8	1.0	1.6
Mississippi	29,500	130	.7	.4	.6
East South Central	111,700	3,880	22.1	12.4	19.4
Arkansas	23,200	880	5.0	2.8	4.4
Louisiana	24,600	120	.7	.4	.6
Oklahoma	39,400	700	4.0	2.2	3.5
Texas	130,000	310	1.8	1.0	1.6
West South Central	217,200	2,010	11.5	6.4	10.1
Montana	27,000	1,900	22.6	12.5	19.4
Idaho	14,400	2,200	26.2	14.5	22.4
Wyoming	16,700	1,300	15.5	8.6	13.3
Colorado	25,500	2,600	31.0	17.2	26.5
New Mexico	16,900	2	< .1	< .1	< .1
Arizona	12,300	1	< .1	< .1	< .1
Utah	9,600	[2]700	[2]8.3	[2]4.6	[2]7.2
Nevada	7,000	< 1	< .1	< .1	< .1
Mountain	129,400	[2]8,704	[2]103.6	[2]57.4	[2]88.8
Washington	12,600	700	8.3	4.6	7.1
Oregon	15,100	300	3.6	2.0	3.1
California	41,600	2,600	30.9	17.2	26.5
Pacific	69,300	3,600	42.8	23.8	36.7
Total	1,370,110	[2]205,544	[2]1,275.3	[2]782.1	[2]1,087.4

[1] Mehring and Parks (*148*). For manure applied per acre of the principal crops by States, see "Agricultural Statistics 1940" (*298*). The fertilizer practices surveys of the National Fertilizer Association (*172*) also give statistics on the usage of farm manures; the data of the 1927 survey were analyzed by Parker (*194*).

[2] Revised.

TABLE 33.—*Peat: Total production and imports, estimated consumption by uses, and wholesale prices, every fifth year 1910–35 and annually 1935–54*

Calendar year	Production [1]	Imports [2]	Estimated consumption for [3]—			Average wholesale price per ton [4]	
			Soil improvement	Fertilizer filler	Litter and bedding	Domestic material	Imported material
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Dollars*	*Dollars*
1910	37,634	8,953	7,000	28,000	9,000	3.79	4.68
1915	42,284	7,514	10,000	28,000	12,000	6.82	6.41
1920	73,204	2,762	20,000	41,000	5,000	12.59	13.10
1925	72,436	10,25a	18,000	38,000	22,000	6.25	11.89
1930	70,000	70,406	32,000	40,000	38,000	6.00	12.33
1935	37,060	54,547	34,000	25,000	30,000	5.38	12.42
1936	48,126	75,666	50,000	27,000	40,000	5.79	12.73
1937	51,223	86,871	65,000	30,000	40,000	5.96	14.03
1938	78,000	69,509	79,000	32,000	35,000	6.23	15.72
1939	88,000	78,611	92,000	33,000	40,000	6.58	15.35
1940	98,000	21,689	79,000	30,000	10,000	7.37	20.96
1941	102,000	36,242	77,000	30,000	20,000	7.60	25.21
1942	80,000	49,236	56,000	40,000	41,000	7.63	24.77
1943	79,000	59,427	65,000	36,000	36,000	8.19	26.54
1944	97,000	84,383	85,000	36,000	39,000	9.05	29.77
1945	107,000	77,073	93,000	30,000	48,000	7.67	30.81
1946	140,707	84,078	128,000	45,000	50,000	7.15	32.17
1947	136,232	79,567	131,000	50,000	34,000	6.38	33.92
1948	129,581	91,073	129,000	56,000	36,000	7.17	35.08
1949	129,532	94,747	121,000	60,000	38,000	7.87	33.61
1950	130,723	124,382	161,000	56,000	31,000	8.74	31.09
1951	194,416	144,390	222,000	67,000	31,000	7.66	33.56
1952	210,582	167,404	280,000	68,000	22,000	8.21	38.84
1953	204,209	199,887	291,000	78,000	29,000	7.92	36.69
1954	243,257	240,940	373,000	87,000	24,000	9.24	35.83

[1] U. S. Geological Survey (*307*) and U. S. Bureau of Mines (*271*). No surveys were made for the years 1927–33 and the coverage for 1938–45 was incomplete. The 1930 figure, therefore, is an estimate. The 1938–45 data have been revised to include the estimated production of companies not covered by the surveys.

[2] U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*276*), and U. S. Bureau of the Census (*280, 284, 285*).

[3] Continental United States. 1938–50, Anderson, Blake, and Mehring (*22*); other years, based on Branch surveys and information in "Minerals Yearbook" (*271*).

[4] U. S. Geological Survey (*307*) and U. S. Bureau of Mines (*271*).

TABLE 34.—*Process tankage: [1] Producers, total production, imports, consumption by uses, and wholesale prices, 1910, 1920, and 1930–52*

Calendar year	Producers	Production [2]	Imports [3]	Consumption		Wholesale price per unit of nitrogen [4]
				As separate material [4]	In mixed fertilizers [5]	
	Number	*Tons*	*Tons*	*Tons*	*Tons*	*Dollars*
1910	2				3,000	
1920	4	16,000			20,000	
1930	8				129,000	
1931	6				89,514	
1932	5				40,000	
1933	5	57,750	8,000		76,000	2.58
1934	7	87,346	10,000	[7] 104	87,000	3.22
1935	8	95,063	20,264		99,955	2.82
1936	8	97,621	5,000		102,000	3.05
1937	8	100,706	15,000		124,796	4.10
1938	8	84,493	10,000		94,000	3.18
1939	9	90,374	2,000	[7] 248	92,638	3.10
1940	9	92,631			93,000	2.89
1941	9	90,097		1,879	88,000	3.02
1942	9	120,000			112,000	3.71
1943	8	[8] 104,614		1,600	103,000	4.02
1944	8	[8] 101,300		800	100,000	4.24
1945	7	[8] 90,638		1,146	87,000	4.24
1946	7	[8] 87,695		2,262	86,000	4.30
1947	8	[7] 100,496		[7] 2,724	98,000	5.91
1948	9	[7] 109,089		[7] 1,433	107,000	5.00
1949	9	[7] 94,307		[7] 2,321	93,000	4.45
1950	9	[7] 103,245		[7] 2,751	101,000	4.88
1951	9	[7] 103,393		[7] 8,051	95,000	5.65
1952	10	[7] [9] 82,418		[7] 5,977	76,000	6.00

[1] Formerly known as leather meal and nitrogenous tankage.

[2] 1920, unpublished survey by G. P. Walton, U. S. Department of Agriculture; 1933–52, based on private communications from manufacturers.

[3] 1935, unpublished result of a study made by Felix Stapleton, U. S. Tariff Commission. Estimates for other years are based on information obtained from importers. Imports since 1939 are believed to have been small.

[4] Includes the Territories. 1934, 1939, 1941, 1943–46, based on Branch surveys; 1947–52, Branch surveys.

[5] Continental United States. 1931, 1935, 1937, and 1939, U. S. Bureau of the Census (*276*); other years, estimated. Goldenweiser (*66*) reported 5,094 tons in 1917.

[6] In bulk, f.o.b. at east coast plants; "Oil, Paint, and Drug Reporter" (*1*).

[7] Year ended June 30.

[8] Year ended April 30.

[9] Includes a small production of feather meal.

TABLE 35.—*Sewage sludge: Quantities disposed of by producers and consumption by type of material and use, 1927–53*

Calendar year	Dried activated sludge			Dried digested sludge			Moist sludge given away [6]
	Reported sales [1]	Consumption		Reported sales [4]	Consumption		
		As separate material [2]	In mixed fertilizers [3]		As separate material [5]	In mixed fertilizers [3]	
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1927	20,258						
1928	31,705						
1929	34,135		24,000				
1930	32,663	14,852	17,811				
1931	30,243	12,885	17,358				
1932	43,297	20,714	22,583				
1933	40,076	12,373	27,703				
1934	36,801	13,688	23,113				
1935	37,073	14,980	22,093				
1936	51,951	17,290	34,661				
1937	54,803	22,818	31,985				
1938	47,814	23,745	24,069	25,187	22,000	3,000	37,952
1939	61,588	26,149	35,439	26,562	23,000	4,000	85,869
1940	105,299	26,307	78,992	26,275	23,000	3,000	80,732
1941	118,327	29,801	88,526	28,853	24,000	5,000	95,705
1942	115,824	33,929	81,895	27,736	23,000	5,000	129,441
1943	95,529	28,395	67,134	29,333	23,000	6,000	110,280
1944	84,338	26,704	57,634	35,307	29,500	5,500	126,036
1945	90,567	29,261	61,306	36,065	30,274	5,791	189,092
1946	85,134	40,829	44,305	31,011	25,660	5,351	204,327
1947	73,438	36,037	37,401	28,684	23,394	5,290	207,106
1948	108,231	65,216	43,015	34,472	29,145	5,327	236,585
1949	126,902	64,114	62,788	30,174	24,556	5,618	251,952
1950	119,331	63,366	55,965	37,319	30,738	6,581	320,340
1951	144,680	65,164	79,516	50,771	44,119	6,652	286,485
1952	157,551	73,412	84,139		36,277		279,815
1953		69,494			36,719		

[1] Complete reports were obtained from Chicago, Ill., Milwaukee, Wis., Houston, Tex., Pasadena, Calif., Indianapolis, Ind., and Tenafly, N. J. These are the principal if not the only producers.

[2] 1930–44, sales by producers to consumers; 1945–53, based on Branch surveys.

[3] 1929, estimated; 1930–52, tonnage obtained by subtracting preceding column from "Reported sales."

[4] California Department of Agriculture (*38, 39, 40*) and Federation of Sewage Works Associations (*60*), supplemented by reports received from Battle Creek, Mich., Dayton, Ohio, Duluth, Minn., Grand Rapids, Mich., Lincoln, Nebr., Rockford, Ill., Spartanburg, S. C., Springfield, Mass., Springfield, Mo., Stamford, Conn., Toledo, Ohio, and Wichita, Kans.

[5] 1938–44, estimated; 1945–53, based on Branch surveys.

[6] Requests for data were sent to many cities, but reports were received from only 46 municipalities and consequently these data should be considered as minimum quantities. The tonnages consist mostly of digested sludge averaging about 65 percent moisture. They are not included with commercial fertilizers in other tables.

TABLE 36.—*Miscellaneous natural organic materials: Estimated consumption, decennial years 1850–1920 and annually 1925–54* [1]

Calendar year	Animal tankage [2]	Bat guano [3]	Bird guano [4]	Dried manure [5]	Garbage tankage [6]	Hoof and horn meal [7]	Poudrette	Seed meals [8]	Tung meal [9]	Whale tankage [10]	Other fertilizers of animal or vegetable origin [11]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1850	----------	----------	12,992	----------	----------	----------	5,000	----------	----------	----------	----------
1860	----------	11,216	58,364	----------	----------	----------	10,000	----------	----------	----------	----------
1870	----------	----------	56,208	----------	----------	----------	25,000	5,000	----------	500	----------
1880	20,000	----------	9,430	----------	----------	1,000	70,000	8,500	----------	1,000	----------
1890	155,000	1,248	0	----------	10,000	2,000	60,000	24,000	----------	2,500	500
1900	185,000	1,000	1,288	5,800	80,000	3,000	5,000	10,500	----------	700	500
1910	226,000	4,500	18,242	15,000	119,000	8,000	2,000	4,500	----------	935	12,000
1920	209,000	5,500	9,192	40,000	139,000	6,000	0	1,700	----------	3,228	43,000
1925	86,000	1,300	7,945	55,000	133,000	5,000	0	1,000	----------	3,535	46,000
1926	75,000	700	7,603	62,000	105,000	5,615	0	1,000	----------	3,278	45,000
1927	79,000	1,200	12,678	82,000	90,000	5,610	0	1,300	----------	2,858	42,000
1928	81,000	900	11,857	100,000	85,830	4,000	0	1,000	----------	2,849	35,000
1929	89,000	1,000	15,403	109,000	78,000	3,000	0	2,000	----------	11,841	33,000
1930	68,000	500	18,167	124,000	74,000	3,600	0	4,000	----------	5,815	30,000
1931	54,000	500	3,580	107,000	51,482	2,000	0	3,000	----------	8,118	32,000
1932	78,000	1,240	26,234	64,000	20,000	2,000	0	5,000	----------	722	28,000
1933	62,000	2,676	47,838	42,000	30,000	2,000	0	4,200	----------	11,000	35,000
1934	63,000	2,320	14,603	50,000	50,000	3,000	0	14,000	----------	2,487	40,000
1935	59,000	1,500	11,312	47,000	55,441	3,000	0	25,200	1,000	2,176	42,000
1936	66,000	1,800	18,633	55,000	60,000	3,000	0	20,300	500	2,407	44,000
1937	46,000	2,500	6,166	62,000	55,501	2,500	0	15,500	700	700	46,000
1938	60,000	1,400	14,561	47,000	30,000	----------	0	15,000	1,000	1,740	41,000
1939	55,000	1,200	5,260	46,000	33,232	----------	0	14,051	2,000	100	31,000
1940	60,000	1,700	0	[12] 40,000	20,000	----------	0	17,000	2,000	112	24,000
1941	45,000	1,800	16,827	[12] 52,000	15,000	----------	0	12,000	3,000	5,075	33,000
1942	15,000	1,300	0	[12] 74,000	16,898	----------	0	20,000	1,000	3,201	21,000
1943	10,000	1,600	632	[12] 97,000	15,721	----------	0	15,000	4,300	8,990	22,000
1944	10,000	1,100	137	[12] 106,000	14,700	----------	0	5,000	7,800	4,752	18,000
1945	10,000	1,000	173	[12] 105,000	13,864	----------	0	7,000	8,500	2,939	16,000
1946	10,000	1,000	1	85,000	15,829	----------	0	6,000	8,700	588	20,000
1947	12,000	1,000	0	100,181	14,054	----------	0	4,000	8,600	----------	22,000
1948	11,000	1,000	0	124,000	12,731	----------	0	5,000	10,000	----------	22,000
1949	11,000	1,000	0	145,000	11,666	----------	0	3,000	21,364	----------	22,000
1950	9,000	1,000	34	177,000	10,152	----------	0	3,000	20,675	44	28,000
1951	9,000	1,000	44	193,000	9,022	----------	0	5,000	7,150	----------	25,000
1952	----------	1,000	44	----------	7,009	----------	0	----------	13,315	----------	----------
1953	----------	----------	----------	----------	----------	----------	0	----------	27,670	----------	----------
1954	----------	----------	----------	----------	----------	----------	0	----------	18,994	----------	----------

[1] Includes Hawaii and Puerto Rico. Except as otherwise noted: 1850–1937, (*154*); 1938–45, (*156*); 1946–52, estimates based on information from producers, importers, and other qualified persons.

[2] Estimates.

[3] Estimates based on imports from Mexico and Cuba plus an allowance for domestic production. From 1900–21, a total of about 100,000 tons of bat guano were obtained from Carlsbad Caverns, N. Mex.

[4] Assuming that imports from Peru, Chile, Union of South Africa, and a few other countries were used in the same year as imported.

[5] 1943–51, actual shipments by the fertilizer industry to consumers plus estimates for the quantities used in mixtures. In 1935 and 1947 the "Census of Manufactures" (*276*) shows that 2,445 and 10,749 tons, respectively, were used in mixed fertilizers.

[6] 1931, 1935, 1937, and 1939, quantities used in mixed fertilizers (*276*) plus quantities reported sold direct to farmers; 1942–52, total sales of all known producers.

[7] Although hoof and horn meal is still being used, no basis for making a reasonable estimate is available for the years since 1937.

[8] Hempseed, sesameseed, linseed, rapeseed, apricotseed, and similar meals, except castor pomace and cottonseed meal for which data are given in tables 25 and 26, respectively.

1935–48, obtained from producers; 1949–54, U. S. Bureau of the Census, Industry Division (*282*). Shipments by producers.

[9] Assuming that consumption is equal to the sum of the imports of whale refuse and tankage from Alaska, Newfoundland, Falkland Islands, Norway, and Canada. In some years, however, consumption exceeded imports because of local production. For instance, in 1929, only 3,836 tons were imported, but the "Census of Manufactures" (*276*) for that year reports 11,841 tons used in the manufacture of mixed fertilizers.

[10] Cocoa shells, spoiled brewers grain, and various other materials not shown in tables 25–29, 31, 32, 34, and 35.

[11] Revised.

TABLE 37.—*Available phosphoric oxide (P_2O_5): Annual productive capacity of superphosphate plants, stated years 1900–56* [1]

Calendar year	Normal superphosphate			Concentrated superphosphate			Total available phosphoric oxide
	Plants	Material [2]	Available phosphoric oxide	Plants	Material [3]	Available phosphoric oxide	
	Number	*Tons*	*Tons*	*Number*	*Tons*	*Tons*	*Tons*
1900	------	1,860,000	335,000	1	2,000	1,000	336,000
1910	------	5,220,000	940,000	2	7,000	3,000	943,000
1920	[4] 224	8,000,000	1,440,000	2	15,600	7,000	1,447,000
1930	[4] 200	8,900,000	1,600,000	5	97,800	44,000	1,644,000
1940	145	8,399,378	1,511,888	8	400,000	180,000	1,692,000
1945	159	11,486,625	2,067,593	9	496,500	223,400	2,290,900
1947	176	13,246,847	2,384,433	7	488,900	220,000	2,604,400
1948	191	14,121,291	2,541,833	9	648,900	292,000	2,833,800
1950	200	14,334,147	2,580,147	9	701,368	315,616	2,895,763
1951	204	16,621,745	2,991,914	9	793,018	356,858	3,348,772
1956	209	17,778,000	3,200,000	[5] 21	4,667,000	2,100,000	5,300,000

FOOTNOTES FOR TABLE 37:

[1] 1900–30, Parker et al. (*196*), unless otherwise noted; 1940, Jacob (*91*); 1945, Corey (*55*); 1947–48, Jacob (*98*); 1950, Jacob (*93*); 1951, Adams, Tremearne, Jacob, and Porter (*17*); 1956, estimated. Continental United States.

[2] 18-percent available phosphoric oxide basis. Includes wet-base goods.

[3] 45-percent available phosphoric oxide basis.

[4] Number of plants listed in the "American Fertilizer Handbook" (*333*).

[5] In September 1955, 11 normal superphosphate plants also produced concentrated superphosphate.

TABLE 38.—*Available phosphoric oxide (P_2O_5): Production, change in stocks at producing points, foreign trade, and consumption, decennial years 1850–1930 and annually 1930–54*

Calendar year	In superphosphate			In all fertilizers				
	Production		Change in stocks [1]	Foreign trade [2]		Consumption [3]		
	Normal [4]	Concentrated [5]		Imports	Exports	Inorganic forms [6]	Organic forms [7]	Total
	1,000 tons available P_2O_5	*1,000 tons available P_2O_5*	*1,000 tons available P_2O_5*	*1,000 tons available P_2O_5*	*1,000 tons available P_2O_5*	*1,000 tons available P_2O_5*	*1,000 tons available P_2O_5*	*1,000 tons available P_2O_5*
1850	0	0	----------	----------	----------	0.3	3.5	3.8
1860	1	0	----------	----------	----------	2	10	12
1870	12	0	----------	----------	----------	12	19	31
1880	35	0	----------	----------	----------	41	29	70
1890	84	.1	----------	----------	----------	76	56	132
1900	243	.5	----------	----------	----------	177	69	246
1910	431	2.7	----------	----------	----------	414	85	499
1920	856	7	+241	15	39	566	94	660
1930	751	43	+ 28	29	32	745	49	794
1931	455	23	− 98	24	31	573	38	611
1932	296	11	− 67	28	11	375	38	413
1933	450	13	+ 27	34	14	425	30	464
1934	478	31	+ 22	18	22	490	40	530
1935	491	41	+ 18	24	21	549	48	597
1936	569	58	− 7	28	26	619	54	673
1937	729	76	+ 49	44	30	753	41	794
1938	599	86	− 11	28	34	701	43	744
1939	635	126	− 15	22	37	750	39	789
1940	728	151	+ 15	44	45	880	32	912
1941	809	146	− 26	63	52	984	30	994
1942	926	141	− 47	35	60	1,110	21	1,131
1943	1,141	132	− 41	36	92	1,221	16	1,237
1944	1,213	126	− 4	55	60	1,391	14	1,405
1945	1,334	113	+ 3	[8] 33	64	1,419	20	1,439
1946	1,422	145	− 10	[8] 34	[8] 87	1,656	17	[8] 1,673
1947	1,684	173	+ 44	38	93	1,759	16	1,775
1948	1,089	211	+ 66	38	117	1,826	17	1,843
1949	1,045	247	+ 2	45	137	1,866	18	1,884
1950	1,684	309	− 42	38	112	2,049	23	2,072
1951	1,722	322	+ 11	56	108	2,070	20	2,090
1952	1,777	388	+ 42	----------	----------	----------	----------	2,219
1953	1,690	457	+ 13	----------	----------	----------	----------	2,209
1954	1,653	502	+ 44	----------	----------	----------	----------	----------

See footnotes on p. 44.

TABLE 39.—*Available phosphoric oxide (P_2O_5): Consumption, by regions and States and Territories, 1930–53* [1]

Calendar year	New England							Middle Atlantic							
	Maine	N. H.	Vt.	Mass.	R. I.	Conn.	Total	N. Y.	N. J.	Pa.	Del.	D. C.	Md.	W. Va.	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	20,250	1,044	1,727	5,039	725	6,000	34,785	32,141	15,707	39,411	3,922	140	16,975	5,458	113,754
1931	19,695	985	1,618	5,391	651	5,950	34,290	32,038	14,858	34,420	3,563	130	14,399	5,050	104,467
1932	15,050	1,059	1,242	4,889	600	4,378	27,218	24,171	12,857	28,381	3,219	125	12,610	4,539	85,902
1933	12,758	1,169	1,063	4,442	737	3,930	24,099	24,818	11,553	26,973	2,754	135	13,058	5,256	84,547
1934	12,641	1,394	1,423	5,312	1,062	4,015	25,847	24,380	12,135	31,676	3,438	145	14,439	6,432	92,645
1935	12,000	1,584	1,731	5,467	930	4,234	25,946	30,210	13,207	34,609	3,666	150	16,583	7,425	105,940
1936	12,480	1,650	2,046	5,418	940	4,300	26,922	34,020	14,467	36,608	3,744	160	16,465	7,473	112,937
1937	13,860	1,738	3,915	6,548	1,056	5,581	32,493	45,150	16,611	46,566	4,224	170	18,535	7,903	139,159
1938	15,343	1,776	5,453	5,914	1,220	4,441	34,147	44,632	15,970	45,546	3,572	162	16,811	10,823	137,516
1939	16,884	3,001	7,382	6,529	1,215	5,213	40,224	45,732	16,613	48,805	3,312	198	16,800	15,288	146,748
1940	18,439	4,008	5,667	7,227	1,349	5,268	41,949	62,038	15,628	47,477	3,484	198	16,576	15,188	160,589
1941	21,196	4,972	14,113	8,585	1,861	6,495	57,222	70,682	18,089	54,434	3,556	220	18,654	15,829	181,464
1942	22,197	3,649	6,893	8,340	1,645	6,202	48,926	70,020	21,823	58,954	3,918	250	21,320	15,449	191,734
1943	r24,580	r3,280	5,976	r9,483	r1,846	7,419	r52,593	r66,919	r25,077	r59,557	r4,964	195	r25,648	10,364	r192,724
1944	r23,059	r3,858	r9,881	r10,079	r1,958	r8,074	r56,909	r75,621	r28,352	r70,356	r5,720	r193	r27,642	r10,868	r218,752
1945	24,114	3,982	8,080	9,149	2,016	7,806	55,747	74,630	27,564	65,405	5,346	135	25,614	10,862	209,562
1946	27,706	3,659	7,631	8,578	2,112	7,019	56,795	74,068	29,830	72,775	6,344	190	29,466	14,881	227,563
1947	26,765	3,924	7,120	8,096	1,777	6,632	54,314	80,946	27,084	72,106	6,377	195	30,168	15,423	232,293
1948	25,232	4,102	8,511	7,582	1,946	6,655	54,028	71,248	27,090	72,443	6,138	152	27,547	13,017	217,635
1949	25,627	4,018	14,056	10,226	2,080	8,287	64,274	77,909	27,651	80,012	6,359	190	29,513	16,012	237,646
1950	22,657	4,301	8,756	9,841	1,958	7,378	54,891	83,311	26,357	82,969	6,684	172	30,717	17,819	248,029
1951	19,099	3,473	11,251	9,820	1,791	7,359	52,793	81,928	27,038	84,860	7,313	207	32,577	16,075	249,998
1952	23,261	2,492	7,801	8,647	1,619	6,723	50,543	83,308	28,338	83,216	8,530	257	33,401	14,039	251,089
1953	22,226	2,811	5,831	8,085	1,541	7,173	47,667	74,858	27,304	83,326	9,201	270	33,213	11,467	239,639

Calendar year	South Atlantic						East North Central					
	Va.	N. C.	S. C.	Ga.	Fla.	Total	Ohio	Ind.	Ill.	Mich.	Wis.	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	40,606	90,704	72,581	82,460	37,331	323,682	43,233	30,383	5,284	17,800	7,206	103,906
1931	35,276	70,381	53,068	58,373	31,996	249,094	33,404	23,968	3,817	12,924	5,988	80,101
1932	25,423	53,153	32,020	30,697	27,055	168,348	22,926	10,502	1,974	9,327	3,183	47,912
1933	20,313	65,297	46,347	37,843	26,444	205,244	27,872	13,442	2,005	10,000	1,870	55,189
1934	32,257	68,650	44,123	45,205	29,951	220,195	37,840	18,660	2,382	10,636	2,388	71,736
1935	37,390	77,700	46,031	49,657	28,440	239,824	42,145	26,161	2,888	14,657	3,509	89,360
1936	39,877	83,658	47,128	55,682	35,368	261,713	47,032	32,584	3,048	16,051	4,103	105,718
1937	44,392	89,073	54,764	70,891	40,007	299,097	48,934	30,562	4,520	19,247	5,445	108,708
1938	40,680	83,172	45,642	62,778	37,802	270,074	43,214	29,499	4,440	17,556	6,212	100,921
1939	47,485	87,449	45,638	59,256	38,418	278,246	45,814	27,212	5,905	18,739	5,730	103,401
1940	50,710	87,937	48,316	65,093	35,497	287,553	48,448	38,934	6,912	21,770	11,492	127,556
1941	54,122	86,338	47,235	70,245	40,650	298,590	54,143	36,404	11,253	27,238	15,573	144,611
1942	57,763	106,894	51,150	86,971	43,796	346,574	61,576	44,941	19,348	38,276	32,971	197,112
1943	61,090	r115,719	64,950	r109,150	r53,591	r404,500	r69,797	r51,165	r21,240	33,035	r29,076	r204,313
1944	r69,430	r120,302	r62,785	r103,103	r57,306	r412,926	r81,351	r58,331	r30,621	r42,117	r34,764	r247,184
1945	73,942	124,426	65,336	97,324	55,733	416,761	80,894	63,252	38,640	44,841	33,575	261,202
1946	81,425	154,114	76,678	109,447	66,531	488,195	94,437	78,709	47,263	53,383	43,165	316,957
1947	82,425	160,549	80,631	118,132	55,157	496,894	100,305	86,738	68,150	53,396	48,632	357,221
1948	74,430	145,675	74,904	107,392	49,620	452,021	112,514	102,614	76,410	56,771	58,530	406,839
1949	80,583	155,381	83,699	108,591	58,707	486,961	114,537	91,318	64,583	61,339	42,257	374,034
1950	88,584	160,016	82,730	102,745	65,485	500,160	117,580	106,547	73,617	71,133	56,183	425,060
1951	90,647	155,681	77,039	105,702	72,044	502,713	117,508	109,844	91,677	71,570	54,481	445,080
1952	91,495	158,494	80,629	108,127	74,631	513,376	135,152	125,602	106,521	78,420	50,595	496,290
1953	83,579	153,620	75,624	105,130	74,569	492,522	132,964	138,119	120,285	79,063	56,200	526,631

See footnotes at end of table, p. 46.

FOOTNOTES FOR TABLE 38:

[1] 1850 and 1860, estimated; 1870–1920, computed from the production of superphosphate (table 50) and the average available *phosphoric oxide* content for that year. 1930–54, computed from data of the U. S. Bureau of the Census (*283, 286*) and including enriched superphosphate for 1952–54. Includes wet-base goods. Continental United States.

[2] Computed from data in table 58 and the average phosphoric oxide content for each year. Since 1935 roughly 20,000–50,000 tons of concentrated superphosphate have been mixed annually with normal superphosphate to raise the grade of the latter. *Continental* United States.

[3] Computed from the stocks on hand at producing plants at the beginning and end of the year (*281, 285, 286*).

[4] 1930–45, Mehring and Clark (*144*); 1920 and 1946–51, evaluated in the same way as for 1930–45. A large part of the imported phosphoric oxide was in the form of ammonium phosphate. Most of that exported was superphosphate. The Territories are included.

[5] Computed from published tonnages of material; 1850–1942 (*154, 156*); 1943–53, based on Branch surveys. The Territories are included. In 1950, 77.4 percent of the total was in the form of normal superphosphate and base goods, 13.9 percent as concentrated superphosphate, 7.6 percent in other inorganic forms, and 1.1 percent in the organic form.

[6] Superphosphates, basic slag, ammonium phosphate, *precipitated bone*, phosphate rock, and other materials.

[7] Bonemeal, cottonseed meal, tankage, guano, fish scrap, and other materials.

[8] *Revised.*

TABLE 39.—*Available phosphoric oxide (P_2O_5): Consumption, by regions and States and Territories, 1930–53* [1]—Continued

Calendar year	West North Central								East South Central				
	Minn.	Iowa	Mo.	N. Dak.	S. Dak.	Nebr.	Kans.	Total	Ky.	Tenn.	Ala.	Miss.	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	2,997	3,090	7,958	600	65	336	856	15,902	12,892	18,603	60,046	29,673	121,214
1931	2,355	2,552	6,284	400	60	150	437	12,238	10,866	13,529	38,026	14,511	76,732
1932	1,220	1,300	2,934	130	30	85	221	5,920	6,637	7,133	19,287	6,255	39,312
1933	1,010	650	3,862	50	20	85	328	6,005	7,494	8,697	26,172	8,752	51,115
1934	1,242	710	8,408	64	40	306	1,061	11,891	8,503	9,552	30,768	12,090	60,913
1935	1,543	720	9,331	60	40	279	1,356	13,329	10,290	10,649	35,904	15,533	72,376
1936	1,352	925	14,834	114	45	304	2,060	19,634	13,144	17,194	41,185	16,061	87,584
1937	2,085	1,423	12,611	132	60	570	3,740	20,621	25,639	20,953	53,958	20,827	121,377
1938	2,057	1,903	11,062	221	60	621	3,753	19,677	31,553	20,546	42,186	17,136	111,421
1939	2,098	2,054	10,940	343	130	823	3,293	19,681	36,020	25,730	43,982	17,260	122,992
1940	3,770	2,720	13,193	624	209	873	4,223	25,612	63,253	37,960	55,574	17,417	174,204
1941	7,208	4,454	14,429	735	200	720	5,142	32,886	57,100	41,766	55,324	18,494	172,084
1942	8,780	7,630	19,725	822	200	960	7,209	45,315	57,383	44,977	64,855	27,589	194,804
1943	9,228	10,019	[2]24,812	925	166	620	[2]6,804	[2]52,574	44,420	45,164	[2]80,844	[2]34,166	[2]204,594
1944	[2]16,797	[2]15,661	[2]34,268	[2]1,232	[2]73	[2]866	[2]10,362	[2]79,259	[2]50,106	[2]51,136	[2]87,830	[2]35,747	[2]224,828
1945	22,038	27,855	27,932	1,362	128	774	9,718	89,805	50,139	51,971	86,047	40,570	228,727
1946	29,091	32,913	38,830	2,017	685	2,183	11,345	117,064	49,555	56,257	93,676	46,366	245,854
1947	29,740	37,055	40,007	4,586	1,274	1,902	16,297	130,880	49,979	60,259	96,304	49,547	256,089
1948	46,290	44,824	47,701	5,175	1,540	3,484	20,869	169,883	58,327	57,462	100,736	59,461	275,986
1949	40,078	45,076	44,947	3,720	1,270	3,729	27,133	165,953	67,625	59,447	110,741	50,123	287,936
1950	50,288	58,995	56,668	4,988	1,300	6,756	37,832	216,827	75,545	64,075	116,641	53,127	309,388
1951	42,854	66,341	68,607	5,322	1,890	10,435	35,591	231,040	66,693	57,551	118,640	53,392	296,276
1952	42,941	60,909	85,278	11,133	2,081	14,892	49,524	267,848	73,644	65,192	116,155	55,334	310,325
1953	57,565	93,225	80,502	15,876	4,481	19,377	41,549	312,575	65,570	58,295	101,534	46,040	271,439

Calendar year	West South Central					Mountain							
	Ark.	La.	Okla.	Tex.	Total	Mont.	Idaho	Wyo.	Colo.	N. Mex.	Ariz.	Utah	Nev.	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	6,528	18,862	728	15,559	41,617	559	718	150	457	576	500	368	10	3,338
1931	6,531	10,104	781	7,618	25,034	402	342	180	1,476	337	262	1,662	22	4,773
1932	928	4,681	315	2,974	8,898	224	513	258	648	158	250	817	32	2,900
1933	1,448	5,278	210	3,441	10,377	447	855	269	381	246	188	400	43	2,829
1934	3,184	6,508	522	5,372	15,586	1,046	855	715	729	249	250	463	54	4,361
1935	2,584	7,458	681	6,959	17,682	1,146	894	660	414	470	509	315	42	4,450
1936	3,278	8,279	601	7,615	19,773	1,361	1,044	988	812	765	900	782	80	6,432
1937	4,205	11,157	703	9,428	25,703	1,985	2,386	754	1,333	965	1,155	1,140	120	9,838
1938	4,478	10,846	839	9,131	25,294	1,920	2,596	942	988	768	689	1,950	130	9,983
1939	7,024	11,601	821	10,514	29,960	1,935	2,887	915	1,345	794	1,152	897	175	10,100
1940	12,151	10,918	542	12,761	36,372	1,771	3,091	945	1,311	1,111	1,158	1,189	175	10,751
1941	13,695	14,893	753	14,873	44,214	1,809	3,873	765	1,635	1,441	2,275	2,532	175	14,496
1942	13,355	15,842	1,983	16,844	48,024	1,890	3,613	960	2,184	1,463	1,524	1,706	240	13,520
1943	[2]17,429	[2]19,189	[2]2,207	25,130	[2]63,955	2,484	3,909	767	2,593	1,613	2,547	1,695	91	15,699
1944	[2]20,969	[2]19,072	[2]3,518	26,201	[2]69,760	[2]3,446	[2]7,764	[2]1,003	[2]3,398	[2]2,540	[2]3,010	[2]3,058	[2]84	[2]24,303
1945	13,863	20,175	3,221	33,835	71,094	3,238	7,730	1,172	4,665	3,214	3,643	2,480	77	26,219
1946	18,910	23,310	5,158	46,111	93,489	3,856	10,560	1,652	5,491	3,226	5,166	3,360	142	33,393
1947	25,153	25,351	6,262	59,567	116,313	3,498	10,771	999	5,383	2,286	6,870	3,611	158	33,576
1948	25,109	24,769	10,642	68,426	128,946	3,371	10,309	1,524	7,375	3,146	8,502	2,787	253	37,267
1949	28,346	22,490	16,176	78,880	145,892	2,993	8,083	1,333	8,264	3,341	6,071	2,133	173	32,391
1950	32,217	25,984	18,720	92,506	169,427	4,633	9,717	2,146	9,833	4,625	8,385	3,337	363	43,039
1951	31,513	27,667	18,837	77,898	156,015	6,143	9,957	2,025	9,440	5,077	10,401	3,172	468	46,681
1952	33,439	29,389	23,870	81,149	167,867	5,496	10,560	2,337	11,228	6,690	11,713	3,410	592	52,026
1953	28,437	26,167	21,466	71,587	147,957	8,245	13,560	3,293	12,091	4,776	11,641	3,838	656	58,100

See footnotes at end of table, p. 46.

TABLE 39.—*Available phosphoric oxide (P_2O_5): Consumption, by regions and States and Territories, 1930–53* [1]—Continued

Calendar year	Pacific				Territories				Continental United States	United States and Territories
	Wash.	Oreg.	Calif.	Total	Hawaii	Puerto Rico	Alaska	Total		
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	1,763	1,125	11,174	14,062	9,873	11,790	9	21,672	772,260	793,932
1931	1,435	990	7,586	10,011	9,232	4,904	14	14,150	596,740	610,890
1932	1,000	1,008	7,014	9,022	8,366	9,115	14	17,495	395,432	412,927
1933	1,012	1,016	7,298	9,326	10,017	4,766	12	14,795	448,731	463,526
1934	1,234	1,026	9,653	11,913	8,960	5,811	19	14,790	515,087	529,877
1935	1,452	1,176	11,937	14,565	8,512	5,473	20	14,005	583,472	597,477
1936	2,167	1,300	13,683	17,150	7,070	7,476	23	15,169	657,863	673,032
1937	2,856	1,600	15,015	19,471	8,241	9,315	54	17,610	776,557	794,167
1938	2,916	1,850	13,418	18,184	7,198	9,241	48	16,487	727,217	743,704
1939	3,642	3,191	16,292	23,125	6,600	8,337	32	14,969	774,477	789,446
1940	8,670	4,830	17,902	31,411	5,646	10,612	27	16,285	895,997	912,282
1941	6,068	4,921	21,036	32,025	5,625	9,754	29	15,408	978,192	993,600
1942	5,908	4,345	23,287	33,540	5,726	5,491	45	11,262	1,119,549	1,130,811
1943	6,334	5,628	23,442	35,404	4,632	6,414	58	11,104	[2]1,226,356	[2]1,237,460
1944	[2]9,669	[2]6,973	[2]37,404	[2]54,046	[2]5,420	[2]11,835	65	[2]17,320	[2]1,387,967	[2]1,405,287
1945	9,981	6,976	45,140	62,097	4,714	12,837	38	17,589	1,421,214	1,438,803
1946	13,098	9,691	53,361	76,150	4,874	12,929	78	17,881	1,655,460	1,673,341
1947	10,504	10,509	57,016	78,029	5,061	13,998	46	19,705	1,755,609	1,775,314
1948	8,099	9,951	59,471	77,521	6,565	16,353	66	22,984	1,820,126	1,843,110
1949	9,092	9,576	50,510	69,178	7,050	12,489	112	19,651	1,864,265	1,883,916
1950	9,215	13,741	57,674	80,630	7,732	16,657	----------	24,389	2,047,451	2,071,840
1951	9,325	12,439	65,579	87,343	7,760	14,450	113	22,323	2,067,939	2,090,262
1952	9,179	11,934	70,009	91,122	6,861	11,248	122	18,231	2,200,486	2,218,717
1953	12,332	11,120	69,801	93,253	8,320	10,823	143	19,295	2,189,783	2,209,078

[1] 1940–44, Mehring, Wallace, and Drain (*158*)—adjusted to include consumption in Alaska; other years, computed from tonnages of all fertilizers given in table 106 and the weighted average composition of fertilizers consumed in the State involved. Figures include the available phosphoric oxide content of bonemeal and raw phosphate rock applied, as such, to the soil—total phosphoric oxide of the former and 3 percent by weight of the latter.

[2] Revised.

TABLE 40.—*Available phosphoric oxide (P_2O_5): Average rate of consumption per acre of harvested cropland, by regions and States, years ended June 30, 1939 and 1943–51* [1]

State and region	1939	1943	1944	1945	1946	1947	1948	1949	1950	1951
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Maine	23.73	30.56	37.29	37.30	41.44	44.35	44.60	40.39	48.17	37.02
New Hampshire	8.56	17.59	16.80	18.25	17.77	14.20	25.88	18.65	25.56	23.04
Vermont	3.25	11.02	13.00	10.64	13.55	13.50	18.03	19.51	21.31	20.26
Massachusetts	34.81	40.73	38.38	35.10	35.85	34.22	34.72	43.25	42.88	47.83
Rhode Island	39.93	69.24	66.28	69.48	67.48	68.33	75.02	75.56	88.23	80.36
Connecticut	25.14	39.01	38.76	34.00	35.64	36.38	32.56	37.19	46.07	41.98
New England	17.74	29.81	29.09	26.83	29.22	29.58	32.13	32.02	36.68	32.64
New York	13.60	19.37	20.46	21.10	21.44	24.50	23.36	22.63	27.03	28.05
New Jersey	42.64	56.93	65.75	63.64	64.86	64.97	63.77	70.59	61.84	65.22
Pennsylvania	14.82	19.14	20.27	21.40	21.77	23.63	23.91	25.32	28.81	28.29
Delaware	17.69	22.40	26.21	28.13	28.42	31.46	31.08	31.47	31.53	32.97
Maryland	20.63	30.06	29.89	31.98	32.36	35.84	34.01	33.98	38.84	41.42
West Virginia	10.15	13.03	12.37	13.74	19.82	20.30	22.45	22.87	26.70	24.62
Middle Atlantic	15.80	21.66	22.01	23.98	24.78	27.15	26.69	27.29	30.69	31.28
Virginia	19.26	26.49	30.14	33.95	40.24	43.89	42.04	42.40	47.30	50.65
North Carolina	26.20	33.22	35.95	39.08	44.72	51.60	47.94	49.69	48.72	51.73
South Carolina	18.14	25.08	27.77	28.21	31.01	35.59	37.78	38.30	37.98	40.29
Georgia	13.00	24.39	25.65	22.81	27.80	31.97	31.42	29.01	30.98	33.55
Florida	46.00	58.20	71.88	66.22	74.53	79.36	65.59	69.18	81.85	88.62
South Atlantic	20.20	29.21	32.54	32.92	38.38	43.06	41.12	41.19	43.53	46.68
Ohio	9.25	12.71	13.29	15.21	16.26	19.24	19.76	21.43	21.65	22.24
Indiana	5.31	9.92	9.64	10.97	13.61	15.16	17.72	17.63	17.56	20.20
Illinois	.63	2.00	2.34	3.47	4.57	6.30	7.13	7.02	6.25	8.07
Michigan	4.86	8.27	8.80	9.57	11.70	12.95	13.00	14.66	16.76	17.05
Wisconsin	1.14	5.64	5.56	5.72	7.38	9.13	11.20	9.75	10.26	10.38
East North Central	3.64	6.83	7.08	8.17	9.73	11.54	12.80	13.01	13.08	14.34
Minnesota	.22	.92	1.33	1.70	3.13	2.71	4.15	5.38	4.76	4.25
Iowa	.18	.86	1.04	2.14	2.82	3.04	4.09	4.67	4.69	5.46
Missouri	1.74	3.79	4.45	4.54	5.50	6.46	6.43	7.27	7.78	11.11
North Dakota	.04	.00	.06	.14	.13	.26	.55	.48	.50	.40
South Dakota	.02	.02	.01	.01	.04	.09	.21	.19	.12	.19
Nebraska	.09	.07	.06	.09	.12	.23	.28	.46	.53	.85
Kansas	.36	.70	.09	.97	.85	1.19	1.66	1.84	3.00	3.99
West North Central	.33	.80	.92	1.20	1.62	1.75	2.33	2.75	2.86	3.38
Kentucky	6.54	14.97	15.25	16.89	19.54	18.11	22.45	26.52	28.74	26.37
Tennessee	4.91	13.23	13.06	15.56	19.56	18.98	22.46	21.21	22.88	22.98
Alabama	11.53	22.83	24.96	26.03	31.08	32.47	34.10	37.47	41.50	48.48
Mississippi	4.74	9.57	9.12	10.85	15.40	13.68	17.60	19.05	16.47	20.06
East South Central	7.03	15.10	15.42	17.25	21.44	20.78	24.10	26.01	27.09	29.16
Arkansas	1.30	5.29	5.56	5.56	5.47	7.54	7.55	10.86	11.13	11.74
Louisiana	4.82	8.96	9.91	9.60	12.74	14.94	14.64	13.98	16.41	18.89
Oklahoma	.07	.34	.41	.44	.63	.84	1.24	1.91	3.63	3.58
Texas	.78	1.46	1.65	2.01	2.89	3.54	4.72	4.64	7.13	7.15
West South Central	1.00	2.27	2.38	2.53	3.26	4.03	4.82	5.28	7.44	7.68
Montana	.73	.57	.83	.94	.87	.89	.81	.64	.88	1.16
Idaho	1.63	2.15	3.89	5.55	5.07	5.41	7.06	4.39	5.33	5.15
Wyoming	1.15	.77	1.03	1.33	1.35	1.48	1.48	1.35	1.92	2.10
Colorado	.54	.79	.96	1.54	1.57	1.81	2.07	2.14	3.04	3.50
New Mexico	1.01	1.71	1.88	4.36	4.47	4.06	2.66	3.64	6.72	7.37
Arizona	3.48	5.74	7.02	8.45	9.27	12.39	15.89	14.59	14.12	19.67
Utah	1.08	2.74	3.78	5.52	4.89	6.11	5.76	2.85	4.44	5.64
Nevada	1.03	.33	.49	.28	.42	.67	.78	.73	1.01	1.13
Mountain	1.04	1.23	1.80	2.49	2.42	2.69	3.01	2.54	3.19	3.78
Washington	2.56	3.37	3.20	5.10	4.91	5.71	4.07	4.28	4.21	4.35
Oregon	2.09	4.12	3.48	4.75	5.90	5.76	6.78	6.71	7.98	9.02
California	4.12	6.58	7.25	10.90	10.78	15.16	12.80	12.50	13.03	15.80
Pacific	3.31	5.16	5.32	8.03	8.17	10.72	9.28	9.20	9.64	11.36
Continental United States	4.26	6.69	7.04	7.62	8.80	9.72	10.31	10.63	11.31	12.26

[1] Computed from the total annual available phosphoric oxide consumption (Branch surveys) and acreages of 74 crops, comprising the acreages for 52 principal crops [1939–50, U. S. Department of Agriculture (*298*); 1951, U. S. Bureau of Agricultural Economics (*264, 266, 267*)] and 22 fruit and nut crops [1939–46, Palmer, Schlotzhauer, and Kiesler (*193*); 1947–51, (*264*)].

TABLE 41.—*Phosphoric oxide (P_2O_5): Average wholesale and retail prices per unit (20 pounds) of phosphoric oxide, by kind of material, decennial years 1880–1920 and annually 1920–53*

Calendar year	Available phosphoric oxide				Total phosphoric oxide					
	Normal superphosphate		Concentrated superphosphate		Phosphate rock			Bonemeal		
					Wholesale			Wholesale		
	Wholesale [1]	Retail [2]	Wholesale [3]	Retail [4]	68 percent Fla. land pebble [5]	75 percent Tenn. brown [6]	Retail [7]	4½–50 raw [8]	1¼–60 steamed [8]	Retail [9]
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1880	1.38	2.66						0.644		0.715
1890	.77	1.25			0.201			.733		.935
1900	.62	1.09			.208			.507	0.689	.802
1910	.59	1.05			.108	0.127	0.325	.626	.712	.787
1920	1.22	1.97			.264	.281	.481	.790	.989	1.001
1921	.85	1.74		1.26	.169	.227	.430	.674	.709	1.333
1922	.59	1.32		1.17	.089	.180	.275	.520	.741	.773
1923	.57	1.32		1.10	.088	.195	.321	.412	.665	.881
1924	.60	1.18		1.09	.066	.172	.414	.281	.590	.751
1925	.58	1.31		1.12	.070	.160	.457	.341	.666	.918
1926	.61	1.33		1.23	.092	.145	.444	.506	.847	1.103
1927	.54	1.21		1.18	.089	.143	.444	.580	.861	.947
1928	.58	1.28		1.24	.090	.143	.474	.749	.959	.998
1929	.61	1.18		1.25	.091	.143	.569	.920	.871	1.009
1930	.54	1.18		1.20	.001	.143	.416	.834	.871	1.144
1931	.48	1.07		1.13	.091	.143	.534	.720	.704	1.171
1932	.45	1.05	0.60	1.08	.091	.143	.469	.639	.470	.978
1933	.43	.97	.575	.78	.089	.143		.568	.696	.870
1934	.49	1.14	.60	1.14	.090	.148	.593	.342	.450	.714
1935	.49	1.09	.60	1.21	.095	.148	.485	.320	.434	.719
1936	.48	1.06	.575	1.11	.053	.143	.570	.380	.468	.693
1937	.51	1.12	.57	1.13	.053	.143	.501	.484	.619	.846
1938	.49	1.12	.58	1.06	.053	.143	.469	.596	.623	.799
1939	.48	1.07	.58	1.16	.054	.143	.488	.638	.842	.880
1940	.52	1.02	.56	.99	.054	.143	.384	.787	.037	1.169
1941	.55	1.02	.59	1.17	.056	.147	.442	.856	1.207	1.229
1942	.60	1.17	.59		.061	.164	.454	.907	1.356	1.420
1943	.63	1.27	.62	1.11	.057	.154	.550	.894	1.678	1.395
1944	.64	1.26	.62		.060	.159	.924			1.47
1945	.65	1.28	.63	1.16	.003	.102	.491			1.54
1946	.67	1.34	.63	1.10	.059	.169	.534	.862	1.860	1.29
1947	.75	1.48	.70	1.36	.087	.172	.627	1.178	2.162	1.09
1948	.76	1.59	.77	1.43	.122	.172	.724	1.081	1.971	1.06
1949	.77	1.60	.83	1.54	.111	.162	.755	1.443	2.225	1.64
1950	.76	1.56	.82	1.46	.110	.142	.693	1.258	1.973	1.92
1951	.81	1.68	.87	1.60	.114	.142	.724	1.393	2.378	3.26
1952	.85	1.71	.88	1.65	.114	.142	.812	1.537	2.487	3.50
1953	.88	1.72		1.71	.134		.984			

[1] Bulk, f.o.b. Baltimore. 1880–1935, Mehring and Deming (*146*); 1936–53, "Better Crops With Plant Food" (*10*).

[2] Bagged. 1880–1935, Mehring and Deming (*146*); 1936–53, U. S. Bureau of Agricultural Economics (*266*).

[3] Bulk, f.o.b. East Tampa, Fla. Provided by B. W. Bellinger, general manager, U. S. Phosphoric Products Division, Tennessee Corp.

[4] 1921–50, Indiana Agricultural Experiment Station (*83, 84*); these reports give the average retail prices of the samples analyzed. 1951–53, U. S. Bureau of Agricultural Economics (*266*).

[5] Unground rock, bulk, f.o.b. *mines*; 68 percent B.P.L. (bone *phosphate* of lime) is equivalent to 31.1 percent phosphoric oxide. The averages of the weekly quotations on a long-ton basis in the "Oil, Paint, and Drug Reporter" (*1*) were converted to a short-ton basis and divided by 31.1.

[6] Unground rock, bulk, f.o.b. *mines*; 34.3 percent phosphoric oxide. See footnote 5.

[7] Average of retail prices for ground rock for direct application divided by *the average phosphoric oxide content as published* by Indiana Agricultural Experiment Station (*83, 84*).

[8] Average quotations per ton for the year (*1*) converted to a phosphoric oxide basis. The 4½–50 grade contains 4.5 percent ammonia, or 3.95 *percent nitrogen, and 50* percent B.P.L., *or* 22.88 *percent total* phosphoric oxide. The corresponding percentages of nitrogen and phosphoric oxide in steamed bonemeal are 1.02 and 27.46. Deductions were made for the value of the nitrogen on the basis of the average price for organic nitrogen (table 9) for the same year.

[9] The average of ton prices of unspecified bonemeal quoted in fertilizer control office bulletins of Indiana, Massachusetts, Pennsylvania, Texas, and Vermont converted to a phosphoric oxide basis. The retail value of a unit of natural organic nitrogen was multiplied by the average number of units as determined from State fertilizer analysis bulletins for the same period of time; the product was deducted from the *ton price* and the remainder was divided by the average percentage of total phosphoric oxide. The results for 1944 and later years are much less reliable than the earlier ones, because they are based on only a few samples for each State or the reports in some years for one or more of the 5 States included no data on bonemeal.

TABLE 42.—*Available phosphoric oxide (P_2O_5): Indiana average retail price per unit (20 pounds) of available phosphoric oxide in different grades of superphosphate, 1920–53* [1]

Calendar year	Under 16 percent				16 to 17.9 percent				18 to 23.9 percent				24 percent and higher			
	Samples	Available phosphoric oxide	Average price		Samples	Available phosphoric oxide	Average price		Samples	Available phosphoric oxide	Average price		Samples	Available phosphoric oxide	Average price	
			Per ton	Per unit			Per ton	Per unit			Per ton	Per unit			Per ton	Per unit
	Number	*Percent*	*Dollars*	*Dollars*	*Number*	*Percent*	*Dollars*	*Dollars*	*Number*	*Percent*	*Dollars*	*Dollars*	*Number*	*Percent*	*Dollars*	*Dollars*
1920	20	13.4	32.68	2.44	198	16.7	31.43	1.88	36	19.8	35.22	1.78				
1921					220	16.7	23.09	1.38	17	19.6	27.54	1.41	21	44.3	56.00	1.26
1922	1	13.2	21.75	1.65	155	16.8	19.73	1.17	30	20.5	22.80	1.11	6	43.4	50.95	1.17
1923	1	14.6	22.45	1.54	181	16.8	23.44	1.40	56	20.4	27.67	1.36	20	42.1	46.22	1.10
1924	14	14.0	24.60	1.76	149	16.9	23.73	1.40	74	20.9	27.50	1.32	53	43.7	47.62	1.09
1925	6	13.9	24.76	1.78	101	16.8	25.08	1.49	79	20.8	25.86	1.24	59	44.4	49.72	1.12
1926	2	13.5	26.70	1.98	85	16.9	24.17	1.43	83	20.4	28.64	1.40	76	42.7	52.72	1.23
1927	8	13.7	29.00	2.12	92	16.9	25.30	1.50	119	21.0	28.70	1.37	23	41.7	49.00	1.18
1928	5	13.9	25.72	1.85	61	16.9	25.80	1.53	86	20.9	28.61	1.37	33	40.5	50.26	1.24
1929	2	14.2	26.00	1.83	41	16.8	24.00	1.43	74	21.1	27.91	1.32	26	40.4	50.55	1.25
1930	3	14.3	25.00	1.75	39	16.7	23.18	1.39	79	20.8	27.02	1.30	17	39.2	47.20	1.20
1931	3	14.2	22.48	1.58	49	16.4	19.51	1.19	96	20.7	25.16	1.22	13	39.5	44.69	1.13
1932	3	14.5	22.28	1.54	57	16.7	20.91	1.25	75	21.1	24.83	1.18	6	43.1	46.60	1.08
1933	1	15.7	21.36	1.36	55	16.9	19.98	1.18	85	21.1	23.44	1.11	10	42.6	33.12	.78
1934	1	13.9	24.00	1.73	54	16.5	20.60	1.25	101	20.6	23.92	1.16	17	43.6	49.60	1.14
1935					56	16.9	20.13	1.19	119	20.9	23.54	1.13	13	40.9	49.60	1.21
1936					40	16.6	20.03	1.21	108	20.9	23.17	1.11	11	42.8	47.37	1.11
1937					22	16.8	21.42	1.28	131	20.8	24.84	1.19	13	43.6	49.10	1.13
1938					17	16.5	21.13	1.28	88	20.4	23.79	1.17	6	43.4	46.13	1.06
1939					10	17.0	20.93	1.23	95	21.1	24.08	1.14	15	43.4	50.47	1.16
1940					9	16.5	20.95	1.27	67	20.6	22.70	1.10	11	45.2	44.80	.99
1941					2	16.4	19.86	1.21	70	20.5	23.57	1.15	4	44.5	52.17	1.17
1942									131	20.1	24.05	1.20				
1943					1	17.1	21.38	1.25	103	20.6	24.30	1.18	1	48.4	53.92	1.11
1944									111	19.7	24.19	1.23				
1945									111	19.5	23.59	1.21	2	46.3	53.85	1.16
					18 to 19.9 percent				20 to 23.9 percent							
1946					14	19.8	25.20	1.27	153	20.4	25.39	1.24	12	47.0	51.62	1.10
1947					2	18.4	27.00	1.47	63	20.7	30.43	1.47	48	43.8	59.41	1.35
1948					6	18.4	29.26	1.59	90	19.8	34.50	1.75	19	45.1	64.52	1.43
1949					4	18.4	24.20	1.32	78	20.2	29.50	1.46	10	45.3	69.73	1.54
1950					12	18.3	25.96	1.42	83	20.2	32.72	1.62	13	45.8	66.69	1.46
1951					1	18.9	33.00	1.75	39	21.0	36.83	1.75	8	46.2	71.59	1.55
1952					2	18.8	32.00	1.70	48	20.7	38.00	1.84	7	47.3	68.00	1.44
1953									21	20.7	38.49	1.86	8	46.8	76.70	1.64

[1] Indiana Agricultural Experiment Station (*83, 84*). Indiana is the only State where the average retail price of different grades of superphosphate is available for a number of years. Price per unit is obtained by dividing the price per ton by the corresponding average percentage of available phosphoric oxide.

TABLE 43.—*Ammonium phosphates:* [1] *Total production, foreign trade, consumption as fertilizer, and wholesale price, 1925–54*

Calendar year	Production [2]	Imports [3]	Exports [3]	Consumption				Wholesale price per ton, 16–20 grade [7]
				Continental United States		Territories [6]	Total	
				As separate materials [4]	In mixed fertilizers [5]			
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Dollars*
1925	14,022				8,000		10,000	
1926	22,796						12,000	
1927	38,179						20,000	
1928	53,196						40,000	
1929				4,000	20,000	8,000	32,000	
1930				5,000	27,000	16,000	48,000	
1931			37,124	5,000	10,000	10,000	25,000	
1932			14,594	4,000	5,000	14,000	23,000	
1933	34,000	4,637	17,329	8,000	2,000	12,000	22,000	
1934	49,000	11,150	21,795	10,200	14,000	13,688	38,000	35.62
1935	55,000	12,109	22,505	10,500	28,000	5,645	45,000	38.11
1936	57,000	14,989	28,587	9,500	22,000	10,870	42,000	38.31
1937	60,000	30,523	25,493	17,500	32,793	12,500	63,000	39.42
1938	59,000	32,511	17,948	16,300	44,000	9,876	70,000	41.14
1939	56,000	30,194	25,397	19,412	27,356	9,800	57,000	40.73
1940	57,000	50,156	28,037	25,000	31,400	12,284	69,000	43.00
1941	30,000	82,082	9,360	29,200	27,187	11,519	68,000	54.00
1942		28,583	5,314	17,910	28,445	10,125	56,000	47.50
1943		43,987	3,369	17,753	16,000	12,644	46,000	
1944		91,943	1,259	46,092	25,000	15,603	87,000	
1945		92,757	952	38,077	40,000	13,137	91,000	
1946	50,000	91,113	3,763	46,975	73,000	11,822	132,000	
1947	135,000	105,189	82,606	83,518	80,521	21,863	186,000	
1948	140,000	108,228	[8] 53,291	139,079	45,000	11,329	195,000	
1949	140,000	126,274	200,965	[9] 113,711	60,000	18,960	193,000	
1950	200,000	106,641	169,559	[10] 102,864	77,000	11,950	252,000	64.02
1951	225,000	134,962	168,908	[11] 106,900	79,000	11,217	287,000	70.89
1952		133,316	60,870	[12] 257,854				
1953		166,497	46,061	[13] 279,207				
1954		164,133	85,657					

[1] All grades. Consisted mostly of 11–48 and 16–20 before 1950.

[2] 1925–28, "Wall Street Journal" (*6*); other years, estimated. Little, if any, fertilizer-grade material was produced in the United States from Jan. 1, 1942, to July 1, 1946.

[3] U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*280, 284, 287, 288*); includes ammoniated superphosphate and ammonium phosphate-sulfate and reexports.

[4] 1934 and 1939–53, from table 44; totals that include State estimates are rounded off in this table. Other years, State fertilizer tonnage reports and other sources of information.

[5] 1935, 1937, 1939, and 1947, U. S. Bureau of the Census (*276*); 1940, 1941, and 1942, unpublished data obtained from War Production Board; other years, estimated.

[6] Imports into Hawaii and Puerto Rico plus shipments from the mainland; U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*280, 284*).

[7] Bagged, f.o.b. Los Angeles. Average of the weekly quotations in the Los Angeles letter in the "Agricultural Chemicals" section of the "Oil, Paint, and Drug Reporter" (*1*).

[8] Includes 18,741 tons shipped to military forces abroad. Private communication from the U. S. Bureau of the Census.

[9] 11–48 grade, 13,377 tons; 18–20 grade, 98,578 tons; other grades, 1,758 tons. Based on Branch surveys.

[10] 11–48 grade, 15,718 tons; 13–39 grade, 6,443 tons; 16–20 grade, 140,703 tons. Based on Branch surveys.

[11] 11–48 grade, 7,867 tons; 13–39 grade, 10,641 tons; 16–20 grade, 169,392 tons. Based on Branch surveys.

[12] 11–48 grade, 11,581 tons; 13–39 grade, 34,980 tons; 16–20 grade, 211,293 tons. Based on Branch surveys.

[13] 11–48 grade, 20,212 tons; 13–39 grade, 33,095 tons; 16–20 grade, 225,900 tons. Based on Branch surveys.

TABLE 44.—*Ammonium phosphates:* [1] *Consumption as separate material, by regions and States, calendar years 1934 and 1939–53*

State and region	1934	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	[2] 407	[2] 91	[2] 100	26	0	0	0	0	0	0	0	0	0	0	0	0
New Hampshire	[2] 21	[2] 7	11	5	0	0	0	0	0	0	0	0	0	0	0	0
Vermont	[2] 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Massachusetts	19	57	47	11	0	2	0	0	0	0	0	0	0	0	0	0
Rhode Island	[2] 2	[2] 11	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Connecticut	[2] 300	[2] 319	[2] 300	50	0	0	0	0	0	0	0	0	0	0	0	0
New England	766	485	458	93	0	2	0	0	0	0	0	0	0	0	0	0
New York	[2] 153	[2] 191	177	104	1	0	0	3	0	0	0	0	0	0	0	0
New Jersey	[2] 49	[2] 79	188	87	254	7	0	0	17	0	0	0	0	0	0	0
Pennsylvania	[2] 14	22	25	29	30	7	0	0	0	1	0	0	0	0	0	1
West Virginia	[2] 400	[2] 42	121	25	0	0	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	622	334	511	245	285	14	0	3	17	1	0	[4] 9	0	0	0	[5] 6
South Atlantic	4	0	0	0	137	707	0	0	0	0	0	0	0	0	4	181
Indiana	2	0	0	0	22	3	0	0	0	40	370	0	0	0	0	0
Illinois	[2] 9	15	13	21	21	25	15	1	1,910	2,482	1,628	1,165	1,787	2,899	3,212	1,530
Michigan	1	0	0	0	0	5	1	0	0	0	0	0	0	0	0	0
Wisconsin	0	0	0	0	0	0	0	0	10	820	1,419	995	5	43	0	0
East North Central	12	15	13	21	43	33	16	1	1,920	3,342	3,417	2,160	[6] 1,926	2,942	3,212	1,530
Minnesota	20	50	25	51	10	101	280	0	56	1,105	2,558	1,111	1,430	1,242	2,231	987
Iowa	0	0	0	0	0	0	0	2	0	10,240	7,432	3,450	5,588	13,453	15,748	19,362
Missouri	90	82	23	8	2	0	0	0	480	742	162	0	0	2,104	5,462	3,717
North Dakota	0	0	0	0	0	0	0	0	0	150	152	370	220	554	1,795	5,086
South Dakota	0	0	0	0	0	0	0	0	0	440	200	0	95	493	650	1,300
Nebraska	0	0	0	0	0	0	0	0	1,030	690	900	367	875	2,000	6,355	7,824
Kansas	0	33	0	0	0	0	0	0	100	751	620	320	5,057	16,687	32,851	29,977
West North Central	110	165	48	59	12	101	280	2	1,726	14,118	12,034	5,618	13,265	36,533	65,092	68,253
Alabama	[2] 452	0	0	0	0	0	0	4	0	0	3	0	0	140	0	0
Mississippi	[2] 120	[2] 95	0	0	0	0	0	0	0	0	2,858	150	50	195	44	5
Louisiana	[2] 208	[2] 20	0	0	0	0	0	0	0	3,332	3,851	1,430	1,968	3,150	3,798	5,545
Arkansas	15	0	1	15	------	0	0	0	40	619	16,085	3,023	1,390	2,427	3,354	3,224
Oklahoma	0	1	<1	1	1	0	0	0	0	416	2,473	269	2,441	4,529	8,668	7,986
Texas	[2] 485	[2] 3,243	[2] 3,522	[2] 2,193	[2] 28	0	0	0	88	9,084	28,810	25,415	55,345	53,570	60,393	56,043
South Central	1,280	3,359	3,523	2,209	29	0	0	4	128	13,451	54,080	30,287	61,194	64,011	[7] 76,266	[8] 72,823
Montana	0	0	0	0	0	0	0	0	0	5	360	0	310	1,440	800	1,953
Wyoming	0	0	0	0	0	0	0	2	160	400	400	40	50	0	0	400
Idaho	0	4	0	0	2	2	60	1,970	210	1,140	926	371	186	427	5,402	8,517
Colorado	0	0	0	0	0	0	0	48	880	2,813	1,104	300	1,039	531	985	391
Utah	0	0	0	0	0	0	134	932	1,123	1,198	1,360	0	1,250	695	1,420	1,942
Nevada	0	0	0	0	0	0	2	6	0	24	2	4	0	0	720	1,313
New Mexico	0	524	440	325	0	0	0	0	2,690	850	3,129	6,074	5,081	6,282	5,241	5,011
Arizona	0	432	470	542	475	1,191	2,250	2,180	1,952	6,572	9,379	3,020	10,696	10,001	12,702	18,811
Mountain	0	960	910	867	477	1,193	2,446	5,138	7,015	13,002	16,660	9,809	18,612	20,376	27,270	38,338
Washington	[2] 60	478	[2] 500	[2] 2,000	2,583	1,497	9,682	5,935	4,890	5,674	7,040	6,685	5,868	4,449	5,306	11,422
Oregon	49	1,001	[2] 1,000	2,630	3,607	3,126	10,801	4,903	3,744	6,104	8,235	9,787	13,891	13,839	15,146	18,901
California	7,294	12,615	18,079	21,073	10,737	11,080	22,867	22,091	27,535	27,826	37,613	49,356	48,108	54,850	65,558	67,753
Pacific	7,403	14,094	19,579	25,703	16,927	15,703	43,350	32,929	36,169	39,604	52,888	65,828	67,867	73,138	86,010	98,076
Total	10,197	19,412	25,042	29,197	17,910	17,753	46,092	38,077	46,975	83,518	139,079	113,711	162,864	196,900	257,854	279,207

[1] Includes 11–48, 16–20, and 13–39 grades, Leunaphos (20–20), diammonium phosphate (21–53), and monoammonium phosphate (11–60), but not ammoniated superphosphate nor ammonium phosphate-nitrate (28–14). The bulk of the consumption has always consisted of 11–48 and 16–20 grades, and since 1940 the 16–20 grade has been by far the most popular, except in Hawaii where the 11–48 is used in largest quantities for direct application.

[2] Fiscal year ended June 30; unpublished figures from 1934 and 1939 surveys (*146, 150*).

[3] Estimated.

[4] Maryland.

[5] Includes 5 tons consumed in Delaware.

[6] Includes 134 tons consumed in Ohio.

[7] Includes 9 tons consumed in Tennessee.

[8] Includes 20 tons consumed in Tennessee.

TABLE 45.—*Basic slag: Imports and consumption, by States, 1910, 1920, and 1930–53*

Calendar year	Imports [1]	Consumption [2]									
		Alabama	Florida	Georgia	Kentucky	Louisiana	Mississippi	North Carolina	South Carolina	Tennessee	Other States [3]	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1910	9,920										25,000	25,000
1920	22	7,000					1,000				2,000	10,000
1930	3,772	10,000				[4] 1,550	5,000			1,000	7,450	25,000
1931	1,640	11,000				[4] 1,505	6,000			2,000	1,495	22,000
1932	2,452	7,000				[4] 964	4,000	17		1,000	3,019	16,000
1933	967	7,000				[4] 360	4,000			1,000	3,640	16,000
1934	147	11,000	5	121		[4] 672	7,000		1,000	3,000	2,202	25,000
1935	1,207	14,000		500		[4] 523	8,000	1,000	3,150	4,000	2,827	34,000
1936	849	15,000		700		[4] 243	9,000	2,000	3,000	5,000	2,057	37,000
1937	800	14,000	1,000	1,000		[4] 389	8,000	3,683	2,000	4,000	1,928	36,000
1938	774	11,000	1,635	1,000		[4] 1,944	7,000	7,836	2,000	3,000	1,585	37,000
1939	454	13,000	3,231	1,000		[4] 4,200	9,000	6,000	3,359	4,000	1,210	45,000
1940	442	11,000	3,343	2,000	1,500	[4] 6,564	11,000	5,000	5,209	8,000	1,384	55,000
1941	0	11,017	2,869	3,320	1,000	10,372	14,309	5,000	8,054	11,584	475	68,000
1942	1	34,073	2,076	5,032	500	4,889	22,364	5,254	6,112	12,935	0	93,235
1943	3	28,055	2,762	7,932	560	7,889	21,617	2,604	4,491	12,270	0	87,986
1944	0	74,379	5,970	1,292	160	6,102	24,862	5,678	4,737	5,564	0	128,744
1945	0	59,858	6,794	399	1,650	26,622	108,997	15,645	11,282	16,615	0	247,862
1946	0	73,185	6,115	5,258	795	12,240	74,220	12,278	6,691	16,499	1	207,262
1947	0	118,543	43,448	19,139	1,906	9,250	99,313	10,789	6,640	10,154	436	325,618
1948	32	111,150	2,709	13,054	1,210	9,585	61,761	8,905	9,300	13,302	195	231,771
1949	105	130,137	4,268	23,593	858	10,882	67,541	7,414	9,785	22,774	191	277,423
1950	200	175,272	5,726	21,382	1,005	10,554	110,860	8,875	8,225	19,444	236	361,579
1951	107	201,088	5,688	28,157	768	19,990	99,896	7,852	12,737	25,291	168	402,535
1952	0	184,786	5,051	27,609	581	20,910	85,280	8,497	12,492	15,264	345	360,815
1953	99	106,724	3,820	18,133	556	10,327	61,113	7,631	9,826	8,271	3,429	229,830

[1] U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*276*), and U. S. Bureau of the Census (*280, 284, 288*); largely Bessemer process slag.

[2] Estimates based on State fertilizer tonnage reports, U. S. Agricultural Adjustment Agency summaries (*260*), imports by customs districts [U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*276*), and U. S. Bureau of the Census (*284*)], and Branch surveys. The bulk of the consumption consists of open-hearth slag produced in the *Birmingham*, Ala., district.

[3] Obtained by subtracting total for given States from total for the United States.

[4] Year ended June 30.

TABLE 46.—*Bonemeal: Production by the fertilizer industry, imports, and consumption, decennial years 1850–1920, 1917, and annually 1925–53*

Calendar year	Production by the fertilizer industry [1]	Imports [2]	Consumption			
			Continental United States		Hawaii and Puerto Rico [5]	Total [6]
			As separate material [3]	In mixed fertilizers [4]		
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1850						5,000
1860						10,000
1870						30,000
1880						82,000
1890						[7]21,000
1900			19,000	[7]84,255	300	104,000
1910		[8]42,939	35,000	104,000	200	139,000
1917	[9]52,329	[8]16,581	[9]22,783	[9]80,699	500	104,000
1920		20,458			500	170,000
1925	48,282	27,979	35,000	50,000	5,000	90,000
1926		52,322			7,500	85,000
1927	41,996	61,136			19,600	70,000
1928		92,354			15,200	75,000
1929	39,548	62,582	29,000	45,676	5,200	[10]80,000
1930		66,842			14,000	85,000
1931	51,778	54,856	29,000	24,817	6,400	[10]60,000
1932		33,732			600	37,000
1933	20,503	31,920			400	45,000
1934		17,862	34,900	24,000	1,000	[10]60,000
1935	56,313	21,123	34,800	26,002	2,000	[10]63,000
1936		30,276	35,300	30,000	100	[10]65,000
1937	84,913	46,766	28,900	32,763	300	[10]62,000
1938		21,931	28,600	25,000	300	[10]54,000
1939	62,004	45,084	26,000	15,775		[10]42,000
1940		30,997	26,100	15,000		[10]41,000
1941		30,919	21,940	15,000		37,000
1942		8,798	19,670	13,000		33,000
1943		5,058	[10]9,741	1,300		18,000
1944		[10]6,559	11,899	1,100		[10]13,000
1945		9,470	14,232	5,000		[10]19,000
1946		8,202	11,809	6,000		18,000
1947		7,630	11,771	7,021		29,000
1948		8,287	11,743	8,000		20,000
1949		30,527	12,705	10,000		23,000
1950		44,870	13,880	10,000		24,000
1951		48,197	13,134	10,000		23,000
1952		47,160	11,476			
1953		17,457	11,522			

[1] U. S. Bureau of the Census (*276*) except 1917. Only part of the total production. Bonemeal produced by the rendering, meatpacking, and glue industries in recent years has been largely used in the manufacture of feeds.

[2] 1910–46, 1952–53, U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*275*), and U. S. Bureau of the Census (*284, 288*); 1947–51, private communication from U. S. Bureau of the Census. 1910–38, includes bonemeal, bone flour, bone dust, and bone ash classified as fertilizer. Large quantities of raw bones and of bonemeal fit for feed were imported and classified separately. 1939–53, includes both feed- and fertilizer-grade meal classified under "Animal and animal products, inedible," meaning inedible for human consumption.

[3] 1900–42, estimates; 1943–53, based on Branch surveys. The estimates are based on actual tonnages reported by many States, including, since 1930, all those thought to have used significant quantities.

[4] 1899, 1929, 1931, 1935, 1937, 1939, and 1947, U. S. Bureau of the Census (*276*); other years, except 1917, estimated.

[5] Rounded sum of imports plus shipments from continental United States as given by the U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*275*), and U. S. Bureau of the Census (*284, 288*).

[6] 1850–90, 1920, 1925–28, 1930, 1932, and 1933, Mehring (*134*). The data for other years, which in some cases are revisions of earlier data (*134, 136*), are the rounded sums of the data in the previous 3 columns.

[7] 1899.

[8] Year ended June 30.

[9] Goldenweiser (*66*).

[10] Revised.

TABLE 47.—*Bonemeal: Consumption as separate material, by type of meal and by regions, calendar years 1935, 1937, 1939, 1941, and 1943–53* [1]

Region	Type	1935	1937	1939	1941	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
		Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
New England	Raw	------	------	------	------	525	765	558	533	1,160	1,120	828	1,236	245	488	180
	Steamed	------	------	------	------	2,094	904	1,650	1,029	592	986	1,629	1,125	2,370	1,673	1,480
	Total	4,700	5,400	4,000	3,920	2,619	1,669	2,208	1,562	1,761	2,106	2,455	2,361	2,615	2,161	1,660
Middle Atlantic	Raw	------	------	------	------	1,989	2,523	2,171	2,198	1,956	1,209	1,293	1,622	1,544	1,844	519
	Steamed	------	------	------	------	3,000	904	1,769	1,727	1,532	1,771	1,054	2,513	2,873	1,843	3,383
	Total	8,720	7,820	8,600	6,150	4,989	3,427	3,940	3,925	3,488	2,980	2,947	4,134	4,387	3,687	3,902
South Atlantic	Raw	------	------	------	------	1,212	921	1,013	591	678	601	650	951	1,907	872	377
	Steamed	------	------	------	------	83	186	110	139	426	484	2,003	347	250	417	975
	Total	3,480	2,750	2,660	2,810	1,295	1,107	1,123	721	1,104	1,085	2,653	1,298	1,257	1,289	1,352
East North Central	Raw	------	------	------	------	328	621	75	109	210	520	564	383	164	290	90
	Steamed	------	------	------	------	1,476	1,611	1,293	744	593	706	576	825	1,414	789	1,325
	Total	5,040	3,230	2,740	1,630	1,804	2,232	1,070	853	803	1,232	1,140	1,208	1,573	1,079	1,415
West North Central	Raw	------	------	------	------	32	107	80	45	4	4	120	88	108	49	11
	Steamed	------	------	------	------	252	37	171	130	179	228	21	64	92	49	22
	Total	1,800	1,405	980	430	284	144	251	175	183	232	141	152	200	98	33
East South Central	Raw	------	------	------	------	1,534	810	1,158	329	298	97	173	118	95	104	14
	Steamed	------	------	------	------	100	526	174	82	114	288	175	166	170	457	392
	Total	1,600	1,660	1,650	1,060	1,634	1,336	1,332	391	412	385	348	284	265	561	406
West South Central	Raw	------	------	------	------	2,690	610	840	484	951	1,247	954	2,019	673	167	65
	Steamed	------	------	------	------	60	0	1,317	0	90	121	119	129	31	22	218
	Total	2,680	3,210	3,550	3,330	2,750	610	2,157	484	1,041	1,368	1,073	2,148	704	189	283
Mountain	Raw	------	------	------	------	0	5	0	1	40	90	0	0	2	0	2
	Steamed	------	------	------	------	114	0	0	0	0	0	0	1	0	0	0
	Total	0	0	50	100	114	5	0	1	40	90	0	1	2	0	2
Pacific	Raw	------	------	------	------	798	1,148	1,610	2,489	1,627	1,334	1,381	2,158	2,069	1,735	1,246
	Steamed	------	------	------	------	453	221	238	1,208	1,312	931	567	136	57	680	1,188
	Total	2,730	3,380	2,070	2,210	1,251	1,369	1,848	3,697	2,939	2,265	1,948	2,294	2,128	2,415	2,434
Territories	Total	1,000	0	0	0	1	0	0	0	0	0	0	0	0	0	5
Total	Raw	------	------	------	------	9,108	7,510	7,505	6,779	6,933	6,228	5,961	8,575	5,877	5,546	2,534
	Steamed	------	------	------	------	7,632	4,389	6,727	5,030	4,838	5,515	6,744	5,305	7,257	5,930	8,980
	Total	34,810	28,855	26,000	21,940	16,741	11,899	14,232	11,809	11,771	11,743	12,705	13,880	13,134	11,476	11,522

[1] The data for 1935, 1937, 1939, and 1941 were largely compiled from State fertilizer tonnage reports for 30 to 36 States, which include nearly all those using substantial quantities. Small additional tonnages were estimated for the remaining States on the basis of the results of Branch surveys (*146, 150*); 1943–53, based on Branch surveys.

TABLE 48.—*Phosphate rock: Quantities sold or used by producers, by grades, and value, 1932–54* [1]

Calendar year	Grade [percent B.P.L. (bone phosphate of lime)]									Value	
	Below 60	60–66	68 [2]	70	72	74 [3]	76 [4]	Other	All grades, total	Total	Average per ton
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Dollars*	*Dollars*
1932	----------	3,680	415,999	383,357	348,837	478,265	129,208	152,380	1,911,732	5,738,493	3.00
1933	97,997	2,840	568,051	630,540	772,419	383,106	253,925	100,272	2,789,150	7,872,362	2.82
1934	99,273	29,520	896,814	477,261	673,880	735,653	205,393	65,871	3,174,665	10,040,005	3.16
1935	124,788	24,847	632,122	473,067	747,070	824,024	331,913	248,735	3,407,466	10,752,568	3.16
1936	182,643	30,607	526,856	373,284	948,891	933,271	446,284	312,244	3,754,080	11,406,132	3.04
1937	357,934	7,299	525,108	457,078	1,074,783	1,164,108	370,003	473,958	4,430,031	12,975,268	2.93
1938	504,961	112	424,309	434,901	1,013,265	1,024,424	367,305	419,570	4,187,947	12,952,143	3.09
1939	443,194	21,076	399,293	429,501	1,375,143	861,684	308,238	309,786	4,207,915	12,294,042	2.92
1940	389,420	62,002	400,941	380,513	1,557,118	1,048,665	368,063	276,301	4,483,023	12,334,662	2.75
1941	460,333	12,284	260,445	457,408	1,707,414	1,193,105	680,378	460,984	5,252,411	15,596,273	2.97
1942	535,366	1,581	418,128	222,678	1,888,670	825,214	626,204	683,808	5,201,549	16,597,492	3.19
1943	634,708	209,133	205,728	549,033	1,804,880	782,293	953,183	512,422	5,741,380	18,962,021	3.30
1944	749,535	235,828	250,807	752,884	1,446,872	1,240,008	989,873	356,033	6,021,840	20,856,429	3.46
1945	586,410	300,443	501,628	1,020,495	1,401,597	1,318,560	1,003,312	365,084	6,503,529	23,951,077	3.68
1946	829,275	341,796	503,993	1,186,020	1,813 845	1,024,237	1,206,978	177,854	7,683,998	31,043,821	4.04
1947	939,586	660,260	1,100,880	1,452,744	2,305,323	2,647,794	940,010	63,676	10,110,273	46,638,837	4.61
1948	708,142	783,283	1,060,600	1,599,032	1,379,503	3,140,228	1,038,229	4	9,709,021	50,501,598	5.20
1949	898,026	420,613	1,040,076	1,628,563	1,449,734	3,032,578	1,593,291	2,484	10,065,365	51,415,027	5.11
1950	918,868	336,052	1,505,818	1,253,455	1,646,223	3,433,059	2,290,503	0	11,483,978	59,027,848	5.14
1951	1,705,279	403,600	1,331,243	1,258,136	1,563,962	4,051,712	2,052,696	0	12,426,628	66,158,078	5.32
1952	1,903,269	343,171	1,076,024	1,545,778	1,704,428	4,657,009	1,453,378	0	12,683,057	68,120,918	5.37
1953	2,547,379	581,448	1,491,780	2,086,955	1,202,472	4,202,706	1,907,333	0	14,020,073	76,597,850	5.46
1954	2,526,457	470,342	2,306,648	1,831,765	1,623,884	4,095,390	1,694,596	0	14,609,082	81,510,056	5.58

[1] U. S. Bureau of Mines (*271*, *275*) which also specifies Florida, Tennessee, and western rock data since 1946. No data are available for years before 1932. Continental United States.

[2] 68 basis, 66 minimum.

[3] 1932–34, includes 74 and 75 minimum; 1935–54, 75 basis, 74 minimum.

[4] 1932–34, includes 76 and 77 minimum; 1935–54, 77 basis, 76 minimum.

TABLE 49.—*Phosphate rock: Sold or used by producers, by States and types of rock, 1892–1953* [1]

Calendar year	Florida				Idaho	Montana	South Carolina [2]	Tennessee			Other States	Total
	Hard rock	Land pebble	Other types	Total				Brown	Blue	Total		
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1892	174,617	24,534	[3] 122,673	321,824	0	0	441,535	0	0	0	0	763,359
1893	241,567	97,019	[4] 152,874	491,460	0	0	562,871	0	0	0	0	1,054,331
1894	365,636	110,751	[4] 114,584	590,971	0	0	504,121			21,490	0	1,116,582
1895	343,950	202,732	[4] 80,546	626,228	0	0	483,812			43,137	0	1,163,177
1896	332,428	109,088	[3] 112,500	554,022	0	0	450,714			29,296	[5] 7,840	1,042,472
1897	403,365	103,188	[3] 112,070	618,623	0	0	401,274			144,170	0	1,164,067
1898	410,827	173,694	[4] 88,480	673,001	0	0	447,870			345,080	0	1,465,951
1899	515,533	198,430	[4] 99,627	813,590	0	0	399,448			481,815	[6] 2,733	1,697,586
1900	475,974	247,971	[4] 67,046	790,991	0	0	368,073			509,030	[7] 1,466	1,670,160
1901	512,476	277,148	[4] 52,611	842,235	0	0	359,723			458,811	[8] 1,000	1,661,769
1902	480,910	393,110	[4] 5,662	879,682	0	0	350,989			437,095	[7] 806	1,669,152
1903	462,421	437,788	[4] 63,307	963,576	0	0	289,585			515,794	[9] 2,430	1,771,365
1904	594,817	516,134	[4] 90,754	1,201,705	0	0	303,303			594,240	[8] 113	2,099,359
1905	646,993	592,017	[4] 98,389	1,337,399	0	0	302,652	490,710	49,315	[10] 540,303	0	2,180,854
1906	658,110	750,497	[4] 46,439	1,461,046			250,516	571,990	39,949	[10] 613,398	[11] 5,712	2,330,672
1907	723,695	750,027	[4] 40,527	1,520,249			288,037	665,945	43,672	[10] 715,245	[12] 13,602	2,537,133
1908	667,232	1,215,423	[4] 12,499	1,895,154			252,555	419,008	89,283	[10] 510,083	[12] 14,683	2,672,475
1909	575,215	1,418,051	0	1,993,266			232,908	307,340	74,710	382,050	[12] 10,632	2,618,856
1910	490,949	1,824,859	0	2,315,808	[13] 10,790	0	201,218	368,008	[14] 77,063	[14] 445,971		2,973,587
1911	496,732	[15] 2,231,895		2,728,507	[13] 11,760	0	189,455	[16] 408,876	[14] 80,978	[14] [16] 489,854		3,419,672
1912	552,699	[15] 2,143,628		2,695,727	[13] 13,005	0	147,200	402,855	[14] 71,276	[14] 474,131		3,330,132
1913	548,509	[15] 2,302,140		2,850,709	[17] 5,659	0	122,453	[16] 505,746		505,746		3,484,567
1914	346,852	[15] 2,048,700		2,395,558	[17] 5,634	0	119,749	[16] 541,187		541,187		3,062,128
1915	56,146	1,465,499	0	1,521,645	[13] 4,297	0	93,475	[16] 436,530		436,530		2,055,947
1916	[18] 62,737	1,645,609		1,697,746	[13] 1,907	0	59,413	[16] 407,801	53,404	[16] 461,205		2,220,271
1917	20,811	2,244,470	0	2,265,311	[13] 16,008	0	37,503	[16] 560,867	73,812	[16] 574,679		2,894,401
1918	69,498	2,236,469	[20] 9,331	2,315,298	[21] 13,300	0	41,485	[16] 419,479		[16] 419,479		2,789,652
1919	310,723	1,523,463	[20] 16,238	1,859,424	[13] 18,967	0	68,122	[16] 532,532	65,576	[16] 598,108		2,544,621
1920	448,270	3,309,804	[20] 15,627	3,773,710	[21] 62,282	0	49,438	[16] 622,918	88,112	[16] 711,030		4,596,460
1921	196,867	1,791,815	[20] 4,949	1,993,631	[22] 7,015		0	[16] 282,848	28,182	[16] 311,030		2,311,708
1922	210,654	2,094,470	[20] 500	2,305,624	5,019	0	1,680	[16] 385,539	19,167	[16] 395,706		2,708,029
1923	223,458	2,629,913	0	2,853,371	[17] 33,975	0	0	[16] 479,135	1,029	[16] 480,164		3,367,510
1924	160,280	2,564,202	0	2,724,491	[17] [23] 43,198		0	[16] 420,291	23,943	[16] 444,234		3,211,923
1925	192,217	3,089,313	0	3,281,560	73,848	0	2,405			[16] 534,328	[24] 7,500	3,899,637
1926	130,210	2,902,976	0	3,033,192	37,086	0	0			[16] 519,895	[24] 5,000	3,595,173
1927	147,004	2,805,906	0	2,953,910	50,691	0	0			530,581	[24] 7,000	3,551,182
1928	107,428	3,122,032	0	3,229,460	41,974	0	0			646,346	[24] 3,795	3,921,575
1929	81,115	[19] 3,377,779		3,458,894	40,297	45	0			710,012	[24] 3,000	4,212,158
1930	91,563	[19] 3,546,277		3,637,840	67,123	8,720	0			684,370	[24] 1,500	4,397,559
1931	94,091	2,229,703	[20] 15,018	2,308,812	68,206	76,040	0			384,857	[24] 1,120	2,839,155
1932	64,488	[19] 1,570,614	[20] 11,271	1,646,373	25,932	22,501	0			[25] 216,006		1,911,732
1933	58,668	2,314,928	[20] [24] 18,892	2,392,488	22,121	551	0			[25] 374,020		2,789,150
1934	102,070	2,519,220	[20] [24] 32,304	2,653,654	41,609	2,336	0			[25] 477,606		3,174,685
1935	130,460	2,542,278	[20] [24] 40,802	2,713,540	46,811	30,707	0			[25] 616,318		3,407,466
1936	155,522	2,748,785	[20] [24] 35,581	2,939,888	52,706	40,345	0			[25] 721,081		3,754,080
1937	71,849	3,217,103	[20] [24] 67,486	3,356,438	93,448	56,934	0			[25] [26] 924,113		4,430,931
1938	140,051	[19] 2,832,205	[20] [24] 59,896	3,032,215	73,935	74,471	112			[25] [26] 1,007,214		4,187,047
1939	99,787	[19] 2,853,516	[20] [24] 46,935	3,000,238	106,905	49,710	0			[25] [26] 1,051,062		4,207,915
1940	25,051	[19] 3,114,486	[20] [24] 46,866	3,186,413	110,978	71,948	0			[25] [26] 1,113,684		4,483,023
1941	42,660	3,673,271	[20] [24] 53,480	3,769,411	108,947	117,721	0			[25] [26] 1,254,801	[27] 1,501	5,252,411
1942	78,416	3,241,007	[20] [24] 54,280	3,373,703	127,708	168,451	0			[25] [26] 1,530,295	[27] 1,326	5,201,549
1943	38,223	3,901,177	[20] [24] 79,712	4,019,112	121,986	134,136	0			[25] [26] 1,466,146		5,741,380
1944	25,200	4,110,633	[20] [24] 67,297	4,203,130	126,073	208,806	0			[25] [26] 1,483,531		6,021,840
1945	71,109	4,695,385	[20] [24] 80,321	4,746,815	138,141	168,060	0			[25] [26] 1,449,613		6,503,529
1946	112,980	5,384,471	[20] [24] 108,715	5,606,172	[24] 350,177	201,537	0			[25] [26] 1,526,112		7,683,998
1947	88,850	7,071,766	[20] [24] 99,254	7,259,870	[24] 940,450	204,570	0			[25] [26] 1,581,310	[27] 58,007	10,110,273
1948	53,982	7,192,332	[20] [24] 77,655	7,323,969	[24] 480,500	278,525	0			1,464,408	[27] 155,610	9,709,021
1949	29,660	7,520,909	[20] [24] 86,339	7,633,908	[24] 527,862	397,789	0			[26] 1,505,809		10,065,365
1950	79,877	8,884,970	[20] [24] 91,327	9,056,174	[24] [28] 641,809	235,385	0			1,550,610		11,483,978
1951	84,689	9,328,517	[20] [24] 103,215	9,516,451	777,700	341,048	0			1,590,279	[27] 201,071	12,426,028
1952	90,816	9,659,089	[20] [24] 84,955	9,834,860	[24] 695,017	372,176	0			1,626,809	[27] 154,190	12,683,057
1953	91,532	10,099,320	[20] [24] 85,010	10,266,877	1,199,286	[29] 737,100	0			1,816,830		14,020,073

[1] U. S. Geological Survey (*307*) and U. S. Bureau of Mines (*271*).
[2] From 1892 to 1902, inclusive, about one-third of the South Carolina production was river rock and two-thirds land rock. Production of river rock ceased in 1910 except for 112 tons in 1938.
[3] Largely river pebble, but includes some soft rock.
[4] River pebble.
[5] North Carolina.
North Carolina and Pennsylvania.
[7] Alabama, Arkansas, and Pennsylvania.
[8] Pennsylvania.
[9] Arkansas and North Carolina.
[10] Includes some white rock.
[11] Arkansas and Idaho.
[12] Arkansas, Idaho, Utah, and Wyoming.
[13] Includes some rock from Utah and Wyoming.
[14] Includes some from Arkansas.
[15] Includes some river pebble.
[16] Includes some from Kentucky.
[17] Includes some from Wyoming.
[18] Includes some blue rock.
[19] Includes several thousand tons of soft rock.
[20] Soft rock.
[21] Includes some from Utah.
[22] Includes some from Montana.
[23] Wyoming.
[24] Includes some waste-pond phosphate.
[25] Includes apatite from Virginia.
[26] Includes sintered matrix.
[27] Utah.
[28] Includes some from Montana.
[29] Wyoming.

TABLE 50.—*Phosphate rock: Production, sold or used by producers, foreign trade, stocks on hand, and apparent consumption, 1868–1954*

Year [1]	Quantity mined [2]	Sold or used by producers [2]	Stocks on hand Dec. 31 [2]	Exports [3]	Imports [3]	Apparent consumption [4]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1868		13,733		233	4,928	18,428
1869		35,793		4,211	3,472	35,054
1870		73,070		17,508	5,040	60,602
1871		83,091		47,627	9,296	44,760
1872		65,811		37,148	5,824	34,487
1873		88,707		30,279	15,232	73,660
1874		122,461		58,850	17,024	80,635
1875		137,525		79,012	12,992	71,505
1876		148,375		84,913	10,080	73,542
1877		182,560		115,099	11,984	79,445
1878		235,561		136,351	18,816	118,026
1879		223,280		133,914	14,784	104,159
1880		236,742		68,740	20,944	188,946
1881		298,742		79,260	60,704	280,186
1882		371,926		125,984	65,744	311,686
1883		423,786		137,805	55,307	341,288
1884		483,592		170,971	24,539	337,160
1885		442,851		137,278	27,008	332,581
1886		482,215		178,493	34,537	338,259
1887		538,225		223,703	27,101	341,623
1888		505,755		143,455	37,337	399,637
1889		616,274		160,162	38,855	494,967
1890		571,759		245,840	36,055	361,974
1891		658,547		211,232	32,304	479,619
1892		763,359		390,544	21,963	394,778
1893		1,054,331		537,936	24,334	540,729
1894		1,116,583		626,416	27,826	517,993
1895		1,163,177		641,312	20,317	542,182
1896		1,042,472		528,864	16,697	530,305
1897		1,164,067		590,240	8,981	582,808
1898		1,465,951		639,462	74,064	900,553
1899		1,697,586		971,925	129,823	855,484
1900	1,904,078	1,670,162		[illegible],394	153,536	1,129,304
1901	1,613,257	1,661,769		817,084	196,857	1,041,542
1902	1,734,560	1,669,152		898,336	153,872	924,688
1903	1,813,055	1,771,305		879,490	148,921	1,040,736
1904	2,230,109	2,099,359		943,582	145,840	1,301,617
1905	2,394,906	2,180,853		1,047,133	63,192	1,196,912
1906	2,241,561	2,330,672		1,012,720	26,075	1,344,027
1907	2,639,264	2,537,183		1,140,397	28,981	1,425,767
1908	2,980,834	2,672,475		1,339,716	29,942	1,362,701
1909	2,737,709	2,618,856		1,143,023	13,331	1,489,164
1910	2,942,009	2,973,586		1,213,001	24,311	1,784,896
1911	3,474,705	3,419,672		1,396,166	18,091	2,041,597
1912	3,573,457	3,330,132		1,351,302	32,280	2,011,110
1913	3,530,473	3,484,567		1,530,489	19,176	1,973,254
1914	2,967,075	3,002,128		1,079,808	16,888	1,999,208
1915	2,167,582	2,055,947		283,831	6,002	1,778,118
1916	2,429,447	2,220,271		272,019	5,165	1,952,517
1917	3,194,112	2,894,401		186,321	103	2,708,183
1918	2,558,354	2,789,652	1,262,224	160,671	0	2,628,981
1919	2,073,735	2,544,621	621,600	424,179	0	2,120,442
1920	4,452,001	4,596,460	601,440	1,198,077	71	3,398,453
1921	2,717,315	2,311,708	1,031,520	821,309	3,959	1,494,358
1922	2,017,279	2,708,029	940,800	805,609	6,597	1,909,017
1923	3,296,794	3,367,510	826,560	926,857	7,532	2,448,185
1924	3,186,739	3,211,023	801,920	917,026	18,030	2,312,927
1925	3,644,112	3,899,637	560,000	974,624	3,063	2,928,076
1926	4,023,065	3,595,173	985,600	838,839	19,463	2,775,797
1927	3,388,167	3,551,182	823,200	1,028,469	31,578	2,554,291
1928	3,946,018	3,921,575	904,064	1,006,016	51,309	2,966,268
1929	4,280,461	4,212,158	963,794	1,279,876	50,287	2,982,569
1930	4,425,515	4,397,559	1,085,000	1,372,809	36,577	3,061,327
1931	2,880,839	2,839,155	1,056,126	1,065,462	15,116	1,788,809
1932	1,947,901	1,911,732	1,265,432	686,507	14,540	1,239,675
1933	2,042,791	2,789,150	1,118,280	928,546	8,652	1,869,256
1934	3,246,027	3,174,665	1,109,336	1,112,712	0	2,061,953
1935	3,538,447	3,407,466	1,309,450	1,236,021	4,143	2,174,588
1936	3,878,377	3,754,080	1,489,000	1,354,025	3,472	2,403,527
1937	4,772,786	4,430,931	1,771,840	1,179,138	15,008	3,266,801
1938	4,323,733	4,187,947	1,693,440	1,277,742	7,845	2,918,050
1939	4,466,526	4,207,915	1,963,360	1,062,887	3,920	3,148,948
1940	4,556,246	4,483,023	1,893,920	841,674	3,307	3,644,656
1941	5,512,845	5,252,411	1,991,360	1,165,534	4,861	4,091,738
1942	5,397,211	5,201,549	2,091,040	592,170	4,016	4,613,395
1943	6,014,363	5,741,380	1,962,240	401,203	52,086	5,392,263
1944	5,824,002	6,021,840	1,374,240	491,077	138,224	5,668,987
1945	6,047,708	6,503,529	947,520	548,668	158,657	6,113,518
1946	8,029,100	7,683,998	1,356,320	709,340	66,908	7,041,566
1947	10,204,308	10,110,273	1,262,240	1,840,147	48,694	8,318,820
1948	10,514,739	9,709,021	2,037,280	1,278,328	53,876	8,484,569
1949	9,942,771	10,065,365	1,565,760	1,408,917	72,078	8,729,126
1950	12,447,858	11,483,978	2,528,960	2,140,362	97,634	9,441,250
1951	12,068,036	12,426,628	2,166,080	1,878,325	104,627	10,652,930
1952	13,512,679	12,683,057	2,842,560	1,570,183	123,421	11,236,295
1953	14,004,290	14,020,073	2,826,880	2,308,688	113,312	11,824,698
1954	15,479,632	14,609,082	3,797,920	2,671,215	136,658	12,193,740

[1] For the period 1868–85 all figures are for the year ended May 31, except imports which are for the year ended June 30. Since 1885 all data are for calendar years.

[2] 1868–1923, U. S. Geological Survey (*307*); 1924–54, U. S. Bureau of Mines (*271, 273*).

[3] 1868–1925, Jacob and Shelton (*98*); 1926–50, U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*275*), and U. S. Bureau of the Census (*280, 284*); 1951–54, U. S. Bureau of the Census (*287, 288*).

[4] Quantities sold or used by producers, plus imports, minus exports. Continental United States.

TABLE 51.—*Phosphate rock: Consumption by uses, every fifth year 1890–1925 and annually 1925–54* [1]

Calendar year	In manufacture of superphosphate [2]	As separate material	As fertilizer filler	Other uses [3]	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*
1890	352,790	1,904	(4)	7,280	361,974
1895	523,572	7,746	(4)	10,864	542,182
1900	1,086,520	8,960	(4)	33,824	1,129,304
1905	1,137,328	11,760	(4)	47,824	1,196,912
1910	1,673,232	22,400	(4)	89,264	1,784,896
1915	1,614,857	56,524	(4)	106,737	1,778,118
1920	3,112,964	81,537	(4)	203,952	3,398,453
1925	2,710,393	35,839	(4)	181,844	2,928,076
1926	2,540,468	33,490	(4)	201,839	2,775,797
1927	2,237,736	36,912	(4)	279,043	2,554,291
1928	2,666,486	47,202	(4)	252,580	2,966,268
1929	2,633,708	68,571	[5] 30,000	350,290	2,982,569
1930	2,651,921	46,584	39,705	323,117	3,061,327
1931	1,458,750	24,189	34,924	270,940	1,788,809
1932	951,967	7,877	22,027	257,804	1,239,675
1933	1,553,667	8,379	31,031	276,179	1,869,256
1934	1,658,664	20,881	32,210	350,268	2,061,953
1935	1,804,553	37,300	26,800	305,915	2,174,688
1936	1,929,159	50,658	24,148	399,562	2,403,527
1937	2,547,323	95,349	49,865	574,264	3,266,801
1938	2,285,750	93,037	27,716	511,547	2,918,050
1939	2,456,902	107,147	34,713	550,186	3,148,948
1940	2,882,998	119,047	36,740	605,963	3,644,656
1941	3,103,498	160,380	35,147	732,715	4,091,738
1942	3,029,165	206,341	33,730	744,159	4,613,395
1943	4,111,474	217,203	31,013	1,032,573	5,392,263
1944	4,267,804	287,544	21,289	1,091,450	5,668,087
1945	4,576,712	461,040	16,232	1,059,534	6,113,518
1946	5,297,341	591,469	56,848	1,095,908	7,041,566
1947	6,062,400	855,820	42,149	1,358,451	8,318,820
1948	6,259,086	886,846	34,610	1,304,027	8,484,569
1949	6,408,832	820,618	21,073	1,478,603	8,729,126
1950	6,631,587	958,606	17,299	1,833,758	9,441,250
1951	6,948,401	1,113,150	18,868	2,572,511	10,652,930
1952	7,397,733	1,350,712	17,625	2,470,225	11,236,295
1953	7,055,876	1,149,485	14,736	3,604,599	11,824,696
1954	7,267,580	866,898	15,416	4,043,846	12,193,740

[1] 1890–1925, Jacob and Shelton (*98*); 1926–54, U. S. Bureau of Mines (*271*, *278*). The "1945 Minerals Yearbook" (*271*) gives utilization of all domestic phosphate rock for various purposes; the 1946 and subsequent issues give utilization of Florida, Tennessee, and western rock for various purposes. Continental United States.

[2] Apparent domestic consumption of phosphate rock (table 50) less the tonnages reported for all purposes other than the manufacture of superphosphates. The Bureau of Mines data are for domestic rock only. In 1953 and 1954, 1,292,081 and 1,453,445 tons were used to make concentrated superphosphate and 3,158 and 14,393 tons to make nitraphosphates, respectively.

[3] Manufacture of chemicals, feedstuffs, and other uses. The 1953 and 1954 data include 62,902 and 51,455 tons, respectively, used to manufacture other fertilizers, such as calcium metaphosphate.

[4] Not separately available and included in "Other uses."

[5] Estimated.

TABLE 52.—*Phosphate rock: Consumption as separate material, by regions and States and Territories, calendar years 1938–53* [1]

State and region or Territory	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine						0	0	0	0	2	0	0	79	17	5	12
New Hampshire						0	0	0	0	40	1	70	32	51	0	12
Vermont						0	0	0	406	0	0	30	162	235	235	142
Massachusetts	57		42		30	30	5	4	4	160	80	391	280	224	210	242
Rhode Island						0	0	51	250	150	101	102	0	36	14	51
Connecticut						0	2	3	0	3	0	320	205	248	170	149
New England	57		42		30	30	7	58	660	355	182	913	758	811	634	608
New York		55	1,870	209	121	16	38	290	29	240	152	319	1,063	1,183	784	1,078
New Jersey						2	10	13	45	118	99	173	282	882	323	1,092
Pennsylvania	581	9	25	109	151	115	196	404	651	464	552	2,632	2,723	2,482	4,148	7,448
Delaware						0	0	0	303	300	0	30	84	165	100	106
Maryland				548	200	1	5	53	1	0	68	265	649	2,312	3,843	1,615
West Virginia						0	0	0	0	33	0	34	130	80	145	259
Middle Atlantic	581	64	1,895	866	472	134	249	760	1,029	1,155	871	3,443	4,931	7,104	9,343	11,598
Virginia	[2] 1,000	604				9	50	58	1	56	50	320	550	192	1,215	4,043
North Carolina	5,655	3,500				96	0	0	80	240	1,176	550	621	1,181	1,109	1,398
South Carolina	[2] 2,000	1,120	1,369	1,532	1,182	1,067	0	20	90	250	540	810	1,181	1,236	475	763
Georgia	[2] 5,000	[3] 4,431				574	87	4,045	120	410	199	389	604	988	1,557	835
Florida	21,217	21,627	17,154	13,313	13,632	6,352	3,072	2,346	4,408	5,733	1,623	3,690	12,111	10,942	16,572	13,152
South Atlantic	34,872	31,282	18,523	14,845	14,814	8,098	3,209	6,469	4,699	6,689	3,588	5,759	15,073	14,539	20,928	20,181
Ohio	327	93	80	235	70	180	941	779	1,986	4,634	4,170	6,670	8,259	9,036	9,983	12,195
Indiana	3,354	3,892	3,948	5,887	6,468	6,081	13,068	20,505	25,751	40,904	62,331	41,963	42,518	43,699	41,258	33,287
Illinois	[2] 45,000	49,916	47,823	68,290	128,904	175,581	218,092	428,930	498,162	671,128	577,280	474,197	536,278	583,405	699,192	613,424
Michigan					40	97	555	633	1,273	2,820	2,568	1,592	3,075	3,998	3,945	2,465
Wisconsin	207	84	586	869	767	1,352	2,499	2,846	2,620	10,439	9,289	7,146	14,585	22,809	17,412	15,480
East North Central	48,888	53,985	52,437	75,281	136,249	183,291	236,055	453,693	529,792	729,925	655,638	531,568	604,715	662,948	771,790	676,881
Minnesota	352	230	200	125	210	40	730	1,573	1,865	5,805	3,867	2,466	3,824	6,325	8,001	6,995
Iowa	262	1,500	1,194	530	314	1,972	6,025	6,783	10,327	25,142	28,439	22,847	25,321	27,094	28,808	23,385
Missouri	164	572	273	922	542	910	1,412	2,136	4,908	12,081	29,306	57,468	118,451	182,324	276,459	200,435
North Dakota						40	0	0	0	1,034	207	120	140	120	44	60
South Dakota						0	40	40	120	970	480	276	210	210	425	451
Nebraska						0	0	0	0	248	501	698	874	1,329	1,803	1,724
Kansas	146	1,054	722	440	60	200	250	240	960	2,740	3,750	21,681	21,414	13,672	21,850	7,642
West North Central	924	3,356	2,389	2,017	1,126	3,168	8,457	10,772	18,180	48,020	66,550	105,556	168,234	231,074	337,390	240,692
Kentucky	[2] 3,000	[2] 2,000	2,180	440	2,306	7,091	3,858	10,690	9,233	32,111	29,917	26,692	23,786	24,036	19,943	11,802
Tennessee						16	33	177	185	154	411	1,535	1,955	2,316	1,432	831
Alabama						0	1	0	40	180	211	18	1,413	2,279	4,134	3,676
Mississippi	[3] 2,671	[4] 1,078	[3] 1,628	[3] 941	[3] 2,832	3,318	895	195	718	877	1,298	420	3,391	6,778	9,103	4,821
East South Central	5,671	3,078	3,808	1,381	5,138	10,425	4,787	11,062	10,176	33,322	31,837	28,665	30,545	35,409	34,612	21,130
Arkansas						0	220	81	40	270	377	414	1,253	788	2,834	1,020
Louisiana	[4] 216	[4] 901	[4] 1,000	[4] 950	[4] 845	171	589	240	690	100	10,348	8,387	8,186	6,527	4,996	2,796
Oklahoma	[3] 450	[3] 255	[3] 333	[3] 624	[3] 40	350	4,868	5,780	13,974	29,576	24,079	23,439	27,838	35,402	36,401	18,450
Texas	[4] 40	[4] 130	[4] 863	[4] 1,462	[4] 1,509	340	560	1,980	2,638	10,152	3,777	15,416	22,011	39,860	25,027	20,345
West South Central	706	1,289	2,196	3,036	2,394	861	6,217	8,081	17,342	40,098	38,581	47,656	59,268	82,577	69,258	43,211
Montana						0	0	0	0	120	50	0	0	40	0	0
Idaho						0	0	0	0	0	0	50	0	864	380	100
Wyoming						0	60	0	0	0	0	10	10	54	51	50
Colorado						0	0	0	0	0	0	40	0	0	48	160
New Mexico						0	0	0	0	0	0	0	0	50	48	0
Arizona						0	0	0	0	0	40	40	0	0	0	40
Utah						0	5	0	0	50	135	266	225	163	65	0
Nevada						0	0	0	0	0	0	0	0	210	100	40
Mountain						0	65	0	0	170	225	406	235	1,181	690	390
Washington						0	40	0	0	40	100	4,376	1,404	1,189	1,250	738
Oregon						0	0	0	0	25	25	322	180	1,040	420	743
California	623	0	375	510	563	344	0	0	29	15	365	573	123	853	2,265	1,797
Pacific	623	0	375	510	563	344	40	0	29	80	490	5,271	1,707	3,082	3,935	3,278
Territories						405	11	270	129	0	65	536	889	1,881	1,153	1,169
Total	92,322	93,054	81,665	97,936	160,780	206,756	259,097	491,105	582,036	859,823	793,027	729,773	880,155	1,040,306	1,249,733	1,019,138
United States [5]	93,037	107,147	119,047	160,380	206,341	217,203	287,544	491,040	591,469	855,820	886,846	820,618	958,605	1,113,150	1,350,712	1,149,485

[1] Includes colloidal phosphate and also all phosphate rock used in Government programs. 1938–42, State fertilizer tonnage reports and summaries of the use of conservation materials, U. S. Agricultural Adjustment Administration and U. S. Conservation Program Service (*260*, *260a*), unless otherwise noted; 1943–53, based on Branch surveys.

[2] Estimated.

[3] Year ended June 30.

[4] Year ended Aug. 31.

[5] U. S. Bureau of Mines (*271*, *273*); tonnages reported by mining companies as sold for direct application to the soil are given for comparison with totals in line above.

TABLE 53.—*Phosphoguano: Deliveries at mainland ports from islands belonging to the United States in the Gulf of Mexico and Caribbean Sea, 1869–1900* [1]

Year ended June 30	Deliveries	Year ended June 30	Deliveries
	Tons		*Tons*
1869	17,497	1885	13,552
1870	16,036	1886	6,462
1871	15,852	1887	9,213
1872	4,714	1888	6,457
1873	12,336	1889	11,092
1874	7,702	1890	1,317
1875	8,141	1891	17,760
1876	16,550	1892	4,803
1877	6,787	1893	4,901
1878	20,082	1894	5,753
1879	9,781	1895	9,052
1880	14,330	1896	7,760
1881	18,909	1897	5,947
1882	17,079	1898	5,109
1883	8,818	1899	0
1884	10,453	1900	52

[1] U. S. Bureau of Statistics (*276*). Pedro Cays, Navassa Island, Swan Island, and Serranilla were among the islands supplying phosphoguano. Shipments were made to fertilizer factories in United States prior to 1869, but tonnage data are not available. Exploitation of the deposits ceased in 1900. The following quantities of domestic phosphoguano were exported in the fiscal years shown: 1870, 1,737; 1875, 354; and 1880, 532 tons.

TABLE 54.—*Liquid phosphoric acid: Production and shipments for all purposes and consumption as a separate material, 1940–54*

Calendar year	Production [1]			Shipments [2]		Consumption [3]			
	Furnace process	Wet process	Total	Quantity	Value per ton	Arizona [4]	California [5]	Other States [6]	Total
	Tons	*Tons*	*Tons*	*Tons*	*Dollars*	*Tons*	*Tons*	*Tons*	*Tons*
1940						29	235		264
1941	200,542	363,117	662,659			133	408		541
1942	288,942	328,466	617,408			86	1,237		1,323
1943	285,527	351,320	636,847			155	1,101		1,256
1944	306,894	389,676	696,570			1,760	1,523		3,232
1945	364,850	366,093	730,943			1,600	2,552		4,152
1946	440,056	454,559	894,615			1,450	3,574		5,024
1947	529,848	483,123	1,012,971	98,140	58.75	1,550	5,170		6,720
1948	584,147	609,686	1,193,833			1,800	3,233		5,033
1949	716,944	677,600	1,394,544			959	4,962	70	5,991
1950	814,608	825,931	1,640,590	136,009	59.37	1,461	5,785	750	8,005
1951	911,364	934,363	1,845,727	185,674	65.33	2,627	9,674	1,171	13,472
1952	987,361	1,073,738	2,061,099	194,692	63.64	3,810	13,718	1,346	18,850
1953	1,277,139	1,360,828	2,640,967	291,990	59.94	2,572	8,575	1,972	13,119
1954	1,397,710	1,560,168	2,957,878				8,637		

[1] Basis—50 percent H_3PO_4. "Facts for Industry" (*256*). Nine plants were operating in 1929, 10 in 1939, 19 in 1945, 24 in 1949, and 26 in 1952. Of the latter 14 were furnace plants and were situated: 1 in Alabama, 3 in California, 2 in Illinois, 1 in Kansas, 1 in Michigan, 2 in New Jersey, 1 in New York, 1 in Pennsylvania, 1 in South Carolina, and 1 in Tennessee. The remaining 12 plants were wet-process plants located: 1 in Delaware, 3 in Florida, 1 in Idaho, 1 in Illinois, 1 in Montana, 2 in South Carolina, 1 in Tennessee, and 2 in Texas.

[2] Basis—50 percent H_3PO_4. "Facts for Industry" (*256*). The bulk of the phosphoric acid produced has always been used in the same plant to produce concentrated superphosphate or chemicals. Production for sale (*276*) was as follows: 1923, 6,415; 1927, 11,199; 1933, 12,326; 1937, 39,125; and 1939, 76,010 tons.

[3] Basis—as sold, averaging 53 percent H_3PO_4.

[4] 1940–50, Arizona Agricultural Experiment Station (*33*); 1951–53, based on Branch surveys.

[5] California Department of Agriculture (*38, 39, 40*).

[6] Based on Branch surveys. Includes Colorado, Idaho, Nebraska, Montana, Oregon, Utah, and Washington.

TABLE 55.—*Superphosphate: Production, by regions and States, selected calendar years 1909–50*

State and region	1909 [1]	1914 [1]	1919 [1]	1925 [1]	1929 [2]	1935 [2]	1939 [2]	1940 [3 4]	1947 [3 5]	1950 [3 6]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Massachusetts				26,133	50,199	(7)	(7)	70,424	[8] 176,475	[9] 139,026
New York	47,538	(7)	(7)	17,056	[8](7)	(7)	(7)	143,715	209,917	545,932
Pennsylvania	33,416	23,899	12,054	58,400	93,589	(7)	(7)			
New Jersey	72,323	82,674	93,350	94,784	(7)	54,463	102,849	197,449	345,169	
Maryland	208,901	228,045	635,856	710,025	653,785	482,192	662,593	923,030	1,339,961	1,335,073
Middle Atlantic	362,178	334,618	741,260	880,265	747,374	536,655	765,442	1,264,194	1,895,047	1,881,005
Virginia	69,883	76,130	152,305	128,748	98,614	82,713	106,653	307,115	603,643	639,864
North Carolina	92,328	147,694	206,231	129,539	183,826	122,084	135,249	227,490	528,392	534,505
South Carolina	178,770	182,407	249,145	183,201	137,909	112,124	200,752	244,344	498,827	510,903
Georgia	217,594	459,783	341,515	361,242	281,937	168,560	201,884	374,363	844,061	833,574
Florida	46,570	36,701	68,902	80,416	156,139	119,060	304,637	155,018	461,236	472,701
South Atlantic	605,151	902,715	1,018,098	883,146	858,425	604,541	1,009,175	1,308,330	2,936,759	2,991,547
Ohio	44,874	69,927	187,164	210,349	178,457	118,127	128,782	352,869	633,750	728,029
Indiana	4,039	(7)	41,467	23,508	18,861	12,157	26,789	88,053	[8] 275,088	411,434
Illinois	7,317	(7)	43,003	77,003	44,566	16,253	59,219	176,147	689,244	682,710
East North Central	56,830	69,927	271,634	310,860	241,884	146,537	214,790	[10] 617,069	1,598,080	[11] 2,126,550
Missouri									[12] 149,155	161,730
Iowa, Nebraska, and Kansas										157,327
West North Central									149,155	319,057
Tennessee	25,372	47,327	121,122	124,488	173,806	121,990	218,859	255,507	430,079	593,779
Alabama	174,148	230,494	146,677	183,819	106,622	[13] 114,079	(7)	207,408	393,926	379,970
Mississippi	59,902	62,518	51,159	66,217	(7)	(7)	34,017	75,811	480,879	218,281
East South Central	259,422	340,339	318,958	374,524	340,428	[14] 236,078	252,876	538,726	1,322,884	1,102,030
Louisiana	26,577	52,713	59,856	62,055	72,177	46,763	44,973	107,978	276,748	205,266
Texas				15,074	(7)	(7)	(7)	[15] 61,046	288,051	428,320
West South Central	26,577	52,713	59,856	77,129	72,177	46,763	44,973	169,024	564,799	[15] 723,586
California	14,420	(7)	(7)	15,102	7,577	(7)	(7)	(7)	(7)	(7)
All other and undistributed	135,949	59,978	105,476	71,602	213,166	234,828	[15] 668,690	57,429	385,881	184,697
Total	1,460,527	1,760,290	2,515,281	2,638,761	2,531,230	[12] 1,805,402	[12] 2,955,946	4,025,226	9,029,080	9,557,498

[1] U. S. Bureau of the Census (*270*). "As is" basis. Includes concentrated superphosphate. Does not include material consumed in the same plant where produced.

[2] U. S. Bureau of the Census (*276*), 16-percent available phosphoric oxide basis. Includes concentrated superphosphate.

[3] 1940 and 1950, normal superphosphate and wet-base goods; 1947, normal superphosphate, 18-percent available phosphoric oxide basis. Data are for total production whereas for previous years they represent production for sale.

[4] Jacob (*91*). Original data converted to 18-percent available phosphoric oxide basis.

[5] U. S. Bureau of the Census (*276*); total includes production of some plants reporting on a fiscal-year basis thereby differing from the 1947 total production in table 56 which is on a calendar-year basis.

[6] Adams, Tremearne, Jacob, and Porter (*17*).

[7] Included with "All other and undistributed."

[8] Includes production in Maine.

[9] Includes production in Michigan.

[10] Exclusive of production in Michigan, which is included with "All other and undistributed."

[11] Includes production of 304,377 tons in Michigan and Wisconsin.

[12] Includes production in Iowa.

[13] Tennessee Valley Authority production combined with original census figure.

[14] Includes production in Arkansas.

[15] Includes production of 428,320 tons in Oklahoma and Arkansas.

TABLE 56.—*Superphosphate (normal): Production, shipments, foreign trade, stocks on hand, and consumption, decennial years 1870–1920 and annually 1925–54*

Calendar year	Production [1]	Shipments [2]	Producers' stocks on hand, Dec. 31 [3]	Imports [4]	Exports [5]	Consumption			
						Hawaii and Puerto Rico [6]	Continental United States		Total [10]
							As separate material [7]	In mixed fertilizer	
								Produced in same plant [8]	Total [9]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*1,000 tons*
1870	102,800									80
1880	320,000									320
1890	506,000									600
1900	1,768,000						352,000		1,094,000	1,446
1910	2,560,000									2,565
1920	4,033,000				90,712	35,000				3,533
1925	4,342,000	2,084,118	2,030,244		69,972	60,000	997,000	1,457,681	2,055,000	4,012
1926	4,074,000		2,191,725		70,986	83,000	1,077,000		2,435,000	3,505
1927	3,586,000		2,016,311		118,408	75,000	1,000,000	1,651,709	2,197,000	3,272
1928	4,221,000		2,643,802		95,247	70,000	862,000		2,800,000	3,732
1929	4,217,000		2,623,517		87,332	60,000	848,000	1,601,904	2,922,379	3,836
1930	4,084,529		2,177,356		113,058	45,000	990,000		2,701,000	3,736
1931	2,439,581		1,631,130	5,977	90,677	36,000	805,000	1,524,618	2,200,288	3,041
1932	1,569,752		1,280,664	24,507	26,349	25,000	539,000		1,343,000	1,997
1933	2,395,440		1,410,461	26,812	39,416	30,000	580,000		1,490,000	2,100
1934	2,549,348		1,535,437	18,265	65,248	30,000	601,000		1,669,000	2,300
1935	2,625,894		1,633,490	18,596	61,062	29,000	631,000	1,919,579	1,903,000	2,563
1936	3,033,321		1,592,416	16,802	74,972	39,000	713,000		2,300,000	3,032
1937	3,937,570		1,804,764	46,357	86,423	63,000	810,000	2,163,147	2,617,000	3,490
1938	3,178,300		1,805,005	11,488	99,765	41,000	783,000		2,050,000	2,874
1939	3,378,839	3,350,366	1,934,946	13,605	104,051	40,000	735,000	1,395,302	2,125,812	2,901
1940	3,808,040	2,934,336	1,142,585	7,904	158,233	43,000	1,073,000		2,200,000	3,316
1941	4,320,402	3,633,871	932,083	13,459	106,858	64,000	1,527,000		2,487,000	4,078
1942	5,144,484	3,961,362	1,008,139	6,681	81,583	35,000	1,894,881		3,100,000	5,030
1943	6,294,665	3,935,293	790,310	282	237,279	26,000	1,598,399	2,672,749	4,200,000	5,830
1944	6,692,368	3,951,402	794,778	1,357	205,887	59,000	1,670,961	2,830,415	4,336,000	6,066
1945	7,372,104	4,332,992	808,027	1,905	134,831	41,000	1,864,502	3,161,976	4,575,000	6,481
1946	7,847,591	4,421,670	646,278	2,754	167,376	55,000	1,854,847	3,763,803	5,725,000	7,635
1947	9,202,077	4,752,324	856,382	6,638	235,204	58,000	1,690,171	4,502,860	5,913,468	7,662
1948	9,319,697	4,789,666	1,216,788	3,026	399,345	60,000	1,606,294	4,336,799	6,131,000	7,797
1949	9,075,903	4,845,175	1,139,372	1,426	337,826	60,000	1,810,638	4,433,123	6,035,000	7,906
1950	9,296,051	5,065,101	1,050,718	4,549	237,940	62,000	1,863,292	4,526,424	6,390,000	8,315
1951	9,493,472	4,910,273	1,090,830	2,756	275,247	65,000	1,341,123	4,709,967	6,926,000	8,333
1952	9,805,555	4,860,254	1,276,267	6,561	269,030		1,146,757	4,982,889		
1953	9,324,770	4,727,611	1,312,850	3,427	255,572		920,284	4,738,100		
1954	9,136,104	4,709,772	1,234,478	1,082	345,677			4,816,344		

[1] 1870–1929, estimated by subtracting the consumption tonnage of wet-base goods (*154*) plus the production tonnage of concentrated superphosphate (basis 18-percent available phosphoric oxide) (*135*) from the production of all superphosphates estimated by Jacob and Shelton (*98*); 1930–54, U. S. Bureau of the Census (*283, 286*), 18-percent available phosphoric oxide basis; 1952–54, includes enriched superphosphate.

[2] 1925, "as-made" basis (*276*); 1939–54, 18-percent available phosphoric oxide basis (*286*); 1952–54, includes enriched superphosphate.

[3] 1925–30, U. S. Bureau of the Census (*281, 283*); includes the normal superphosphate content of base goods and mixed fertilizers. 1940–54, U. S. Bureau of the Census (*286*); 1940–51, normal superphosphate only; 1952–54, includes enriched superphosphate. 1925–29, 16-percent available phosphoric oxide basis; 1930–54, 18-percent basis.

[4] U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*280, 284, 285*); 1931–34, relatively small quantities of concentrated superphosphate are included.

[5] U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*280, 284, 287*). Previous to 1945 the exports of normal and concentrated superphosphate are combined in the original reports, but the data given here are for normal superphosphate only. The quantities of concentrated superphosphate were deducted on the basis of the value of the individual shipments.

[6] "As-sold" basis. Estimated from the imports, shipments from the continental United States and the available phosphoric oxide content of fertilizers consumed.

[7] "As-sold" basis. 1925–40, estimated from State reports and miscellaneous surveys; 1941–53, based on Branch surveys.

[8] 1925–29, U. S. Bureau of the Census (*276*), "run-of-pile" basis; 1931–54, 18-percent available phosphoric oxide basis (*283, 286*); 1952–54, includes enriched superphosphate.

[9] 1929, "Census of Manufacturers" (*276*); 1931, 1939, and 1947, Census data minus the concentrated superphosphate used in mixed fertilizers (table 58), converted to a "run-of-pile" basis, assuming 18.35 percent available phosphoric oxide in "run-of-pile" material in 1931 and 19.34 percent in 1939 and 1947; other years, estimated on a "run-of-pile" basis.

[10] 1870–1920, estimated; 1925–51, rounded sum of the consumption in the Territories, and in continental United States as separate material and in mixtures. The average available phosphoric oxide was as follows: 1900, 13.98; 1910, 15.68; 1920, 16.06; 1930, 17.47; 1940, 19.25; 1945, 19.49; and 1950, 19.58 percent.

TABLE 57.—*Superphosphate (normal): Consumption as separate material, by regions and States, selected calendar years 1926–53* [1]

State and region	1926	1930	1932	1934	1936	1938	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Maine	4,100	4,600	4,500	4,600	4,800	[2] 6,000	23,000	9,134	9,793	8,306	7,508	18,472	19,344	7,599	11,314	15,472	8,027	6,349	5,522
New Hampshire	897	700	700	953	1,100	[2] 1,500	[3] 19,642	10,199	7,005	6,973	11,548	9,231	10,909	13,642	9,467	10,353	6,274	4,257	4,277
Vermont	[2] 3,295	3,571	1,838	2,363	4,904	[2] 9,277	64,459	15,523	16,857	22,295	31,500	23,283	19,800	27,871	46,096	28,526	28,286	14,893	11,427
Massachusetts	[3] 4,249	[3] 4,368	[3] 3,937	[3] 4,466	[3] 5,278	[3] 7,269	[3] 19,594	14,362	14,843	19,307	16,249	11,583	9,371	6,360	9,753	11,095	9,363	6,297	5,547
Rhode Island	250	375	300	725	700	[2] 800	[3] 3,975	2,154	2,328	1,840	2,269	2,806	1,861	1,767	1,785	2,156	1,554	774	594
Connecticut	5,000	5,000	4,000	3,838	4,500	[2] 5,000	[3] 13,595	9,933	10,205	12,126	13,184	9,716	7,638	7,013	13,733	10,077	9,172	5,257	5,040
New England	17,791	18,614	15,275	16,945	21,280	29,846	144,667	61,304	62,831	70,847	82,458	75,091	68,773	64,352	92,148	69,649	62,690	37,827	33,407
New York	41,438	45,000	32,000	34,150	37,500	[2] 110,198	218,388	266,085	152,868	204,643	153,719	135,778	182,874	113,746	142,649	165,666	143,155	123,805	88,739
New Jersey	5,700	5,600	4,800	4,480	6,400	[2] 6,500	7,708	19,494	10,797	14,909	10,435	11,704	11,024	10,316	9,983	10,194	8,423	6,959	6,405
Pennsylvania	90,088	68,160	48,029	55,844	58,172	[2] 79,472	104,745	98,507	87,975	114,596	79,660	78,052	78,265	70,744	82,377	90,387	83,509	65,261	47,558
Delaware	5,500	5,500	4,200	4,425	4,600	[2] 4,500	3,429	1,901	906	2,334	2,266	2,054	1,995	1,749	1,928	1,877	1,646	1,324	640
District of Columbia	[2] 30	[2] 30	[2] 20	[2] 50	[2] 100	[2] 160	200	50	21	33	44	49	63	77	86	47	72	74	41
Maryland	18,984	14,718	14,130	13,265	13,458	[2] 12,498	15,801	15,268	23,327	24,801	18,508	18,085	15,774	12,119	20,330	25,584	18,460	12,961	6,541
West Virginia	15,000	16,000	15,000	19,010	19,500	[2] 12,000	36,740	54,221	26,064	22,988	29,473	44,699	42,256	30,903	42,399	38,842	32,665	20,320	11,930
Middle Atlantic	176,738	155,008	118,179	131,224	139,730	225,326	387,011	455,526	301,958	384,306	293,605	290,411	332,252	239,645	299,752	332,797	287,930	230,704	161,954
Virginia	75,000	77,000	48,000	57,894	69,000	71,000	85,389	128,824	80,006	81,631	115,437	109,594	69,546	57,082	75,228	76,991	55,079	28,162	8,185
North Carolina	85,000	87,000	67,049	62,000	68,182	56,000	61,523	65,159	50,195	50,670	50,714	65,194	53,040	54,428	55,536	61,539	36,413	29,003	23,645
South Carolina	80,000	75,000	45,000	37,622	45,000	46,000	49,164	22,559	23,481	29,358	59,891	48,918	42,078	40,021	72,944	81,420	52,299	40,404	28,788
Georgia	55,000	55,000	22,000	23,460	34,000	38,000	100,000	140,137	140,008	117,053	130,523	119,583	102,275	103,163	100,522	82,347	50,689	34,910	23,072
Florida	8,000	10,000	7,500	10,487	11,600	[2] 9,018	12,191	14,465	13,219	14,366	21,560	17,420	16,019	14,337	15,035	16,116	13,949	11,346	7,120
South Atlantic	303,000	314,000	189,549	191,463	224,682	220,018	308,267	369,144	309,909	292,978	378,225	360,709	304,958	269,931	319,365	310,713	208,429	143,825	90,810
Ohio	136,291	71,236	47,667	69,732	63,424	[2] 37,749	42,007	51,008	44,313	34,581	23,610	30,761	19,112	20,768	29,683	26,576	23,040	17,372	17,542
Indiana	38,391	20,309	10,276	17,275	25,228	12,624	21,296	37,373	30,891	21,077	27,716	31,788	14,031	25,910	28,195	29,525	15,091	16,836	16,106
Illinois	3,000	5,299	1,676	3,239	5,011	[2] 2,155	13,384	17,707	17,411	30,539	43,067	41,706	33,479	36,527	38,066	47,525	42,791	50,856	53,201
Michigan	16,819	20,000	7,528	11,009	13,729	13,969	36,275	46,642	37,903	27,868	35,410	56,179	33,515	31,946	42,279	44,238	18,198	20,591	17,258
Wisconsin	3,241	7,115	2,890	1,536	3,349	4,308	14,219	42,454	68,730	33,073	33,401	48,989	21,652	17,946	14,292	15,341	3,583	2,508	2,923
East North Central	197,742	123,959	69,537	102,791	110,741	70,893	127,181	195,184	199,338	147,138	163,144	209,483	121,789	133,097	152,515	165,205	102,693	108,063	116,730
Minnesota	2,059	3,684	1,191	[3] 1,661	[3] 898	[3] 1,257	2,023	22,175	21,371	33,532	55,800	60,454	43,690	57,359	47,932	40,047	13,742	9,842	10,475
Iowa	2,500	8,500	4,000	2,066	1,436	[2] 2,162	5,945	22,164	28,710	34,115	60,441	67,124	50,185	49,809	60,507	33,813	73,507	47,977	59,414
Missouri	23,997	21,458	5,811	15,394	[2] 31,255	[2] 24,935	30,981	72,562	90,173	93,693	78,087	81,239	45,522	35,312	25,287	23,757	18,962	16,901	9,382
North Dakota	51	300	60	255	200	[2] 300	----------	----------	409	1,319	1,871	1,094	7,347	6,336	1,508	545	342	496	354
South Dakota	----------	----------	----------	----------	----------	----------	----------	----------	----------	60	411	240	1,490	3,269	2,260	1,763	2,269	1,528	2,371
Nebraska	162	200	100	0	50	[2] 50	0	0	----------	40	621	941	2,949	5,536	4,008	4,442	4,175	6,084	6,004
Kansas	3,500	2,656	382	[2] 2,028	2,556	4,984	3,602	17,207	20,023	29,266	20,591	19,186	35,386	27,674	18,462	11,172	12,245	18,962	4,652
West North Central	32,268	36,198	11,544	21,298	36,395	33,706	49,751	134,109	160,686	192,025	237,822	230,278	186,569	185,595	159,970	165,539	125,242	102,088	92,632
Kentucky	28,000	34,000	20,000	24,000	38,300	41,000	199,502	237,383	153,985	125,304	143,766	100,321	58,204	81,282	121,857	142,698	52,451	52,236	55,515
Tennessee	44,000	48,000	21,000	24,898	30,000	32,000	109,000	166,176	101,335	90,859	125,394	108,062	69,456	59,552	80,798	87,803	31,905	28,894	25,354
Alabama	[3] 129,401	[3] 106,196	[3] 44,544	[3] 42,235	[3] 57,048	[3] 72,337	[3] 124,720	132,763	142,332	132,164	159,575	124,220	88,642	96,438	99,611	96,512	72,508	55,940	42,322
Mississippi	[3] 55,000	[3] 73,091	[3] 20,247	[3] 18,584	[3] 24,953	[3] 24,100	[3] 27,365	37,351	35,587	40,931	38,727	57,625	52,137	60,389	60,999	61,693	52,842	47,931	32,615
East South Central	256,491	261,287	105,791	109,707	150,301	169,437	460,587	573,673	433,219	389,258	467,562	390,228	268,439	297,661	363,265	388,706	209,206	183,001	155,909
Arkansas	[3] 27,170	[3] 17,907	[3] 4,267	[3] 2,111	2,000	[3] 2,705	[3] 3,942	25,742	25,161	46,804	32,104	27,076	39,451	37,125	62,525	66,246	40,116	40,278	25,519
Louisiana	[3] 26,000	[3] 33,787	[3] 8,350	[3] 8,153	[3] 7,146	[3] 6,849	[3] 5,166	14,957	12,843	22,045	27,755	26,317	27,419	22,575	23,634	32,481	22,022	21,255	15,587
Oklahoma	[3] 809	900	[3] 412	[3] 559	[3] 594	[3] 1,278	[3] 990	6,500	5,483	7,935	7,377	11,233	9,927	23,857	37,341	39,497	37,426	41,804	35,918
Texas	[3] 29,963	[3] 18,293	[3] 8,142	[3] 6,886	[3] 6,253	[3] 6,893	[3] 9,513	21,916	31,530	40,699	67,524	93,405	155,963	175,626	138,058	170,912	114,594	99,928	74,370
West South Central	85,933	70,887	21,171	17,713	15,993	17,725	19,614	69,015	74,817	117,678	134,770	158,031	232,751	259,283	311,558	309,048	214,158	203,265	151,394

See footnotes at end of table, p. 64.

TABLE 57.—*Superphosphate (normal): Consumption as separate material, by regions and States, selected calendar years 1926–53* [1]—Continued

State and region	1926	1930	1932	1934	1936	1938	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Montana											500	1,050		342	121	12	40	50	130
Idaho				[2] 1		[2] 1	[2] 10	68	38	13,571	17,010	27,177	25,547	23,144	16,374	14,638	14,093	17,850	12,879
Wyoming										700	1,650	1,691	1,371	1,784	1,125	389	1,420	1,439	1,358
Colorado				15						1,160	8,200	7,594	6,093	6,484	3,337	872	4,200	4,850	3,558
New Mexico	1,409	1,355	400	735	1,200	[2] 460	697	797	1,071	6,821	6,072	3,449	6,994	5,066	1,284	2,738	2,390	1,619	2,290
Arizona			220	360	600	[2] 1,100	779	565	3,747	3,577	3,276	3,023	12,784	9,727	1,988	1,817	6,204	6,059	4,362
Utah									1,490	5,281	3,647	6,271	7,311	4,413	3,922	4,876	4,317	5,772	4,295
Nevada										1		14	66	276	126	86	137	681	273
Mountain	1,409	1,355	620	1,111	1,800	1,581	1,486	1,430	6,346	31,111	40,357	50,269	60,166	51,236	28,347	25,926	33,689	38,329	29,142
Washington	1,672	3,000	1,500	1,608	2,000	[2] 2,400	12,000	4,821	11,141	6,843	11,910	28,056	20,166	11,906	12,976	11,197	10,228	10,062	12,117
Oregon	905	1,500	1,200	1,159	1,300	[2] 1,300	9,000	3,417	12,186	6,692	12,545	22,478	23,587	18,905	13,632	21,177	16,867	22,282	12,065
California	2,561	4,116	4,279	5,657	8,551	[2] 10,599	7,534	27,259	19,968	32,087	42,104	39,913	70,721	74,583	57,108	53,315	67,985	67,311	64,224
Pacific	5,138	8,616	6,979	8,424	11,851	14,299	28,534	35,497	43,295	45,622	66,559	90,347	114,474	105,494	83,718	86,689	97,080	99,655	88,406
Total	1,076,513	989,924	538,745	600,676	712,775	782,833	1,527,098	1,694,881	1,528,399	1,670,961	1,864,502	1,854,847	1,690,171	1,606,294	1,810,838	1,863,292	1,341,123	1,146,757	920,264

[1] 1926–38, Mehring (*155*), except as noted; includes grades up to and including a guaranteed minimum of 20 percent available phosphoric oxide; 1941, Mehring and Vincent (*151*); 1942–53, based on Branch surveys. The 1941–53 data include all grades from 14 to 24 percent available phosphoric oxide, inclusive. The average available phosphoric oxide content in 1926 was 17.25; in 1936, 18.02; in 1946, 20.02; and in 1950, 20.09 percent. Includes Government distribution.

[2] Estimated.
[3] State tonnage reports.
[4] State tonnage report for year ended June 30.
[5] State tonnage report for year ended September 30.
[6] State tonnage report for year ended August 31.

TABLE 58.—*Superphosphate (concentrated): Production, shipments, stocks on hand, foreign trade, and consumption by uses, selected years 1907–20 and annually 1925–54* [1]

Calendar year	Production [2]	Shipped or used in producing plant [2]	Producers' stocks on hand, Dec. 31 [2]	Imports [3]	Exports [3]	Used as separate material			Used in manufacturing [7]	
						Commercial distribution [4]	Tennessee Valley Authority demonstrations [5]	Agricultural conservation programs [6]	Mixed fertilizer [6]	Normal superphosphate [8]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1907	1,800	1,000	800			1,000	0	0		
1910	6,177	6,177	982			6,000	0	0		
1915	9,018	9,118	2,680			9,000	0	0		
1920	15,256	12,880	1,050			10,000	0	0		
1925	36,599	45,587	5,686		3,700	15,000	0	0	25,300	
1926	37,082	36,604	6,164		1,200	13,000	0	0	22,800	
1927	36,856	36,589	6,431		2,000	8,000	0	0	27,000	
1928	68,313	60,587	14,157		4,000	14,000	0	0	42,000	
1929	80,286	73,107	21,316		8,000	17,700	0	0	47,337	
1930	95,198	89,224	27,290		12,000	[10] 22,500	0	0	60,000	
1931	48,287	43,725	31,852		700	15,300	0	0	28,000	
1932	24,192	24,524	31,520		400	[10] 12,254	0	0	13,000	
1933	20,542	31,046	20,016		200	8,800	0	0	23,000	
1934	69,552	51,618	46,950		1,000	[10] 15,200	0	0	30,000	7,000
1935	91,059	81,781	56,228	3,724	500	[10] 14,600	14,000	0	39,000	17,000
1936	129,746	111,810	74,164	2,512	1,600	16,700	27,000	0	48,700	20,000
1937	166,144	170,572	69,736	14,733	2,000	31,000	18,600	25,081	65,000	27,000
1938	186,920	179,520	77,136	9,415	1,300	31,300	13,000	66,947	55,400	28,000
1939	272,750	258,451	91,435	5,537	2,600	40,000	18,600	138,772	60,400	25,000
1940	329,046	343,639	76,942	3,208	5,400	48,500	18,000	177,109	69,100	26,000
1941	317,990	342,529	52,403	5,973	57,642	51,800	20,000	114,467	100,200	28,000
1942	314,430	318,090	48,743	11,977	96,000	55,461	21,000	26,031	118,900	25,000
1943	293,983	300,941	41,580	2,511	150,000	46,171	23,036	0	66,000	20,000
1944	281,076	291,296	32,488	6	96,000	70,865	32,062	0	58,000	44,000
1945	250,960	252,176	32,556	80	72,336	68,689	26,102	0	60,000	30,000
1946	322,319	309,987	54,713	40	102,909	109,760	16,344	18,633	55,000	31,000
1947	383,833	374,701	66,134	156	25,793	144,087	13,849	[11]	146,772	45,000
1948	408,711	464,433	70,681	590	29,435	190,789	2,933	[11]	221,000	50,000
1949	548,504	520,985	104,310	0	16,081	205,820	4,189	[11]	240,000	55,000
1950	686,855	731,747	55,252	500	33,729	275,851	3,799	[11]	358,000	60,000
1951	716,488	705,877	66,356	179	23,444	218,188	2,423	[11]	378,000	65,000
1952	862,345	847,741	87,110	2,674	21,152	233,721	410	[11]		
1953	1,016,078	1,006,240	114,009	2,111	25,254	251,816	463	[11]		
1954	1,248,000	1,164,340	225,682	3,130	88,100		111	[11]		

[1] 1907–42, largely taken from Mehring (*155*); does not include superphosphates containing under 40 percent available phosphoric oxide. 1943–54, includes all grades guaranteed to contain more than 24 percent available phosphoric oxide but excludes enriched grades produced in 1952–54. Includes U. S. Tennessee Valley Authority material. Sources of other data indicated by footnotes to the several columns.

[2] 1907–42, Mehring (*155*); stocks on hand are computed from production and shipment data in original reference. 1943–54, U. S. Bureau of the Census (*286*), 45-percent available phosphoric oxide basis. Quantities used in plants where produced increased from about 2,000 tons in 1930 to 23,990 tons in 1949, amounted to 9,603 tons in 1951 and 14,158 tons in 1952.

[3] 1925–40, Mehring (*155*); 1941–50, U. S. Bureau of the Census (*280, 284*); 1951–54, U. S. Bureau of the Census (*287, 288*). Prior to 1935 imports of all types of superphosphate were reported together. Exports of concentrated superphosphate were first reported separately in 1945. Exports prior to 1945, as given here, were estimated from the values of the individual shipments as recorded in the code books on file in the U. S. Bureau of the Census.

[4] Includes the Territories. 1943–53, based on Branch surveys. "As-sold" basis.

[5] Continental United States. 1943–54, private communications from the U. S. Tennessee Valley Authority.

[6] Includes the Territories. 1937–46, program years; U. S. Production and Marketing Administration (*312a*).

[7] Continental United States.

[8] 1929 and 1947, U. S. Bureau of the Census (*276*); other years, estimated.

[9] Estimated quantities used to boost the grade of run-of-pile normal superphosphate.

[10] Revised.

[11] None distributed directly by the U. S. Production and Marketing Administration nor the U. S. Agricultural Conservation Program Service.

TABLE 59.—*Superphosphate (concentrated): Consumption as separate material, by regions and States, calendar years 1930 and 1934–53* [1]

State and region	1930	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	-------	6	15	20	25	50	19	300	300	500	595	54	10	35	79	0	1	0	3	-------	-------
New Hampshire	-------	3	5	5	5	10	8	12	23	24	1	3	23	9	36	3	0	33	0	-------	-------
Vermont	0	35	35	35	35	35	37	50	50	15	51	463	440	62	0	18	0	0	0	-------	-------
Massachusetts	0	28	23	48	73	84	87	87	44	67	33	30	91	10	0	0	0	0	0	-------	-------
Rhode Island	-------	1	5	5	5	10	19	20	18	10	0	787	2	32	0	0	0	0	0	1	-------
Connecticut	-------	7	-------	-------	-------	25	32	50	50	172	76	52	59	38	21	29	158	24	34	8	13
New England	-------	85	83	113	143	214	202	519	485	788	756	1,389	625	186	136	50	159	57	37	9	13
New York	-------	38	-------	-------	-------	-------	-------	1	98	31	486	151	83	33	21	16	57	64	63	72	211
New Jersey	-------	2	15	50	177	30	4	48	50	75	3	15	19	1	53	17	1	4	6	3	2
Pennsylvania	-------	29	50	100	150	255	200	200	172	306	15	93	191	280	342	0	49	29	69	18	-------
Delaware	-------	12	-------	-------	-------	5	20	20	20	16	0	4	7	3	3	0	0	1	0	-------	-------
District of Columbia	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	0	0	0	35	0	0	0	5	0	0	40
Maryland	0	10	15	20	24	25	38	6	5	4	244	148	80	0	0	0	40	3	0	1	10
West Virginia	-------	-------	-------	-------	-------	50	55	100	205	120	120	68	2	0	0	0	166	4,127	637	623	266
Middle Atlantic	-------	91	80	170	351	365	317	375	550	552	868	479	382	352	419	33	313	4,233	775	717	529
Virginia	-------	-------	-------	-------	-------	1,179	147	150	150	92	2,585	5,998	8,662	10,682	14,203	8,133	7,971	7,810	4,561	2,982	597
North Carolina	-------	8	10	15	20	39	50	100	36	1,075	1,874	5,596	3,563	1,667	5,145	2,485	3,260	2,329	1,764	1,258	1,147
South Carolina	-------	-------	-------	10	20	50	136	7	36	2	1	733	235	237	196	493	0	50	69	12	50
Georgia	-------	-------	-------	-------	-------	2	6	15	10	9	2,905	3,661	3,415	2,540	2,382	678	566	913	398	123	524
Florida	-------	52	60	75	100	136	276	151	357	183	17	4	10	391	180	108	40	58	81	48	123
South Atlantic	-------	60	70	100	140	1,406	615	423	589	1,352	7,382	15,992	15,885	15,717	22,106	11,897	11,837	11,160	6,873	4,423	2,441
Ohio	941	2,359	628	179	811	518	570	1,759	332	181	556	413	356	821	5,385	3,855	2,390	3,626	2,783	3,975	2,894
Indiana	2,371	513	598	522	601	581	562	543	410	199	85	199	257	2,217	10,748	8,108	3,471	3,549	3,731	3,419	3,625
Illinois	30	15	54	112	425	4	11	10	88	112	359	419	711	3,932	10,098	10,881	7,178	5,187	5,382	5,976	9,857
Michigan	702	203	262	255	391	316	421	154	235	100	265	698	517	357	2,878	3,308	850	902	2,180	118	251
Wisconsin	2,321	358	205	177	164	165	154	150	150	7	101	42	144	179	583	1,167	756	815	123	33	109
East North Central	6,365	3,448	1,747	1,245	2,392	1,584	1,718	2,616	1,215	599	1,366	1,771	1,985	7,506	29,692	27,319	14,645	14,079	14,199	13,521	16,736
Minnesota	2,473	453	784	586	1,728	1,001	1,438	3,402	3,833	2,638	1,455	5,021	3,949	4,882	7,573	20,867	16,521	22,436	16,428	14,467	21,438
Iowa	30	15	20	34	50	61	45	80	313	208	191	621	567	3,780	4,840	7,530	9,178	11,266	5,877	6,449	9,565
Missouri	47	15	40	216	457	591	843	1,190	1,119	1,177	1,287	1,639	2,077	2,980	3,151	13,644	12,517	14,595	5,352	4,839	4,237
North Dakota	60	250	250	246	290	500	552	1,500	1,869	1,600	1,639	1,291	553	795	1,374	2,974	2,750	4,325	3,146	10,550	18,392
South Dakota	277	40	100	119	107	200	255	250	200	300	350	390	20	530	130	265	552	883	887	1,250	3,248
Nebraska	1,530	816	600	593	1,430	1,200	1,222	1,500	1,590	1,500	1,242	1,855	1,287	2,752	1,186	2,410	2,922	7,092	10,083	8,587	13,253
Kansas	332	205	300	178	4,090	4,740	3,498	5,940	5,420	5,237	1,052	9,622	9,542	9,900	7,071	17,786	36,844	50,780	30,328	24,701	27,961
West North Central	4,749	1,794	2,094	1,972	8,060	8,293	7,763	13,862	14,054	12,660	7,216	20,459	17,995	25,619	25,125	65,476	81,284	111,377	72,101	70,843	98,094
Kentucky	-------	34	75	58	500	1,000	4,524	223	386	60	1,174	1,047	1,354	4,511	11,633	9,575	10,208	14,385	10,621	11,709	7,322
Tennessee	-------	-------	-------	-------	-------	74	302	350	400	300	7,437	8,731	6,692	6,092	16,728	9,600	11,097	10,968	9,581	10,987	9,481
Alabama	-------	-------	-------	-------	-------	-------	-------	10	10	0	2,837	2,874	2,566	3,457	3,642	1,441	2,645	765	1,884	2,927	294
Mississippi	-------	2	-------	-------	-------	-------	-------	-------	-------	0	1,173	1,307	1,243	1,910	3,464	3,701	2,153	778	3,288	3,325	1,826
East South Central	-------	36	75	58	500	1,074	4,926	583	796	360	12,621	13,959	11,855	15,970	35,467	24,317	26,103	26,896	25,374	28,948	18,923
Arkansas	-------	0	5	0	1	5	1	20	20	4	357	268	208	3,170	3,267	2,048	1,763	2,709	2,940	8,753	3,431
Louisiana	-------	-------	-------	-------	5	1	0	3	1	0	166	57	7	2,156	2,158	1,268	636	1,325	2,011	1,901	1,754
Oklahoma	-------	10	9	1	0	1	3	1	12	20	0	80	179	210	210	0	3,488	3,656	2,847	4,981	5,689
Texas	655	58	35	171	220	150	1,163	846	647	1,259	1,472	4,364	3,783	6,108	3,353	3,207	14,987	25,877	16,916	26,860	21,138
West South Central	655	68	49	172	226	157	1,167	870	680	1,283	1,995	4,769	4,177	11,644	8,988	6,523	20,874	33,567	24,714	42,495	32,012

Montana	1,794	2,319	2,700	3,249	3,912	3,654	4,128	5,000	3,459	4,000	5,296	7,201	6,268	7,356	8,839	6,017	5,594	9,397	12,202	10,624	14,979
Idaho	1,367	1,898	1,882	3,190	5,142	3,858	5,347	6,000	6,233	7,500	7,898	8,903	7,006	9,077	10,489	9,781	8,206	12,690	12,717	8,981	14,726
Wyoming	40	1,390	1,500	1,618	1,676	2,058	2,033	2,500	1,534	2,000	1,698	1,919	1,838	2,752	1,365	2,353	2,036	3,550	3,535	4,029	5,147
Colorado	3,002	1,529	1,500	1,364	2,621	1,340	2,500	2,100	2,800	4,000	4,961	5,946	4,411	5,685	4,857	7,855	8,657	12,282	10,351	10,798	14,379
New Mexico	80	348	400	465	711	732	829	1,364	1,497	2,326	2,747	2,157	3,646	1,998	552	2,523	3,450	7,288	6,034	10,354	6,184
Arizona	600	22	50	80	688	223	147	1,044	3,325	3,000	1,173	826	921	4,165	1,367	3,676	5,897	2,874	3,099	4,164	3,533
Utah	836	1,197	1,000	699	1,870	1,242	1,835	2,000	1,412	2,500	3,416	3,574	3,029	3,202	2,434	2,592	2,394	4,140	3,904	3,316	4,625
Nevada	39	46	50	40	50	50	40	200	180	150	165	135	25	293	258	391	290	405	574	558	585
Mountain	7,758	8,748	9,082	10,705	16,650	13,157	18,859	20,208	20,440	25,476	27,352	30,661	27,146	34,536	27,961	35,258	36,524	52,628	52,416	52,822	64,158
Washington	2,000	23	127	64	40	1,000	1,469	2,500	2,000	2,246	2,409	3,887	4,070	2,641	1,865	1,529	2,571	4,292	4,376	4,416	5,287
Oregon		15	150	855	1,000	1,500	1,985	2,500	2,000	1,845	3,112	1,536	1,329	1,999	2,107	4,228	3,599	5,348	3,287	2,419	2,607
California	940	800	1,051	1,190	1,506	2,500	3,000	4,000	9,000	8,309	4,150	8,025	9,342	9,934	4,070	17,092	12,109	16,017	16,457	13,518	11,479
Pacific	2,940	838	1,328	2,109	2,546	5,000	6,454	9,000	13,000	12,391	9,671	13,448	14,741	14,574	8,042	22,849	18,270	25,855	24,120	20,353	19,373
Total	22,467	15,186	14,588	16,644	31,008	31,250	40,021	48,456	51,809	55,461	69,207	102,927	94,791	126,104	157,936	193,722	210,009	279,650	220,609	234,131	252,279

[1] 1930–35, State reports and miscellaneous sources; 1936–42, Mehring (*155*), commercial distribution only; 1943–53, based on Branch surveys and includes materials distributed by U. S. Tennessee Valley Authority and U. S. Department of Agriculture.

TABLE 60.—*Superphosphate: Consumption as separate material, by grade, selected years ended June 30, 1925–54* [1]

Grade (percent available P_2O_5)	1925	1934	1939	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
10	1,113	820												
12 and 13	9,985	1,111												
14	5,716	1,678	3,999											
16	702,860	341,544	274,847	76	268	4								
17	10,180	235	7											
18	22,858	37,316	45,141	409,951	473,734	599,335	469,492	559,181	536,937	393,038	364,070	282,944	239,217	180,017
19		477	15,138	37,164	110,801	146,899	162,927	139,302	50,506	48,174	34,218	82,258	73,839	65,417
20	47,833	118,879	396,031	1,125,771	983,902	1,181,184	986,460	1,144,424	1,194,266	1,397,138	1,134,780	857,511	729,663	533,179
21–24	2,460	638	2	1,095			621	1,790						2,138
25–35		100	7,424	271	5,184	995	73	1,302	740	1,397	3,035	4,036	10,040	6,414
36–43	3,000	282	570	27,635	40,379	41,522	38,403	36,790	38,555	54,097	63,859	67,291	82,007	71,200
44 and 45	12,000	11,401	102,266	15,543	18,700	53,416	80,536	86,609	93,410	137,353	75,398	72,333	77,953	89,990
46		149	118		40	93	4,096	12,369	23,724	23,906	23,072	33,582	28,328	40,922
47		60	83,569	20,585	3,923	8,682	29,068	26,281	32,285	15,744	5,403	16,240	32,680	27,526
48			6	517	182	411	141	2,510	7,574	20,479	52,048	24,877	13,194	7,262
49 or more										11,690	16,397	5,102	4,394	3,747
Unspecified [2]	1,139,315	68,500	8,451	3,725	6,822		25		4,217	16,918				
Total	2,017,360	583,190	919,569	1,642,333	1,643,025	2,032,544	1,780,770	2,010,888	1,982,514	2,120,181	1,772,272	1,446,774	1,291,321	1,028,412

[1] Includes Government distribution. Year ended June 30, 1925, unpublished survey made by National Fertilizer Association. All other years, Branch surveys, but not published in this form. Continental United States.

[2] Includes run-of-pile, which is ungraded material. The average available phosphoric oxide was 19.34 percent in 1940 and 19.43 percent in 1950.

TABLE 61.—*Superphosphate: Average retail delivered price per ton of several grades, by regions, May 1, 1919 and calendar years 1944, 1950, and 1952* [1]

Region	May 1, 1919, [2] 16 percent	1944 [3]			1950 [4]			1952 [4]		
		18 percent	20 percent	45 percent	18 percent	20 percent	45 percent	18 percent	20 percent	45 percent
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
New England	29.55	28.75	31.50		30.30	30.30		31.75	39.60	
Middle Atlantic	28.90	25.50	28.00		27.50	31.25		30.40	33.90	
South Atlantic	25.98	21.75	23.60		22.00	25.50	56.75	25.25	28.00	58.50
East North Central	30.07	25.00	27.75	57.25	29.15	34.25	66.30	32.25	38.90	70.60
West North Central		28.25	31.00	58.00	34.00	36.90	70.65	38.00	41.25	76.90
East South Central	28.88	22.25	24.00		22.80	27.20	56.50	25.45	31.20	61.10
West South Central	30.60	27.25	28.25			30.75	60.50		34.05	71.55
Mountain		31.75		54.20	34.00		72.40	35.30		77.50
Pacific		29.25		56.00	36.65	40.85	78.05	40.15	42.00	82.75
Average	28.07	24.80	26.60	56.50	26.70	31.20	67.30	30.35	34.20	74.10

[1] Average retail prices by years for long periods of time for Connecticut, New York, Pennsylvania, and Indiana are given by Vial (*328*).

[2] U. S. Bureau of Soils (*274*).

[3] Estimated from prices published by U. S. Office of Price Administration (*310*).

[4] U. S. Bureau of Agricultural Economics (*266*).

TABLE 62.—*Wet-base goods: Number of plants, production, stocks on hand, and total shipped or used by producing plants, 1942–54* [1]

Calendar year	Plants	Production	Stocks on hand, Dec. 31	Shipped or consumed
	Number	*Tons*	*Tons*	*Tons*
1942			8,047	
1943	7	43,553	16,078	39,602
1944	7	46,848	13,106	49,027
1945	7	39,015	15,577	35,371
1946	7	47,949	13,616	51,500
1947	7	62,453	18,235	58,075
1948	7	61,496	14,203	65,108
1949	6	60,673	20,430	53,670
1950	7	61,894	18,404	64,687
1951	7	75,885	17,972	78,428
1952	7	68,919	16,634	67,993
1953	7	65,378	17,650	56,772
1954	6	46,250	15,644	48,778

[1] U. S. Bureau of the Census (*285, 286*). All grades converted to an 18-percent available phosphoric oxide basis.

TABLE 63.—*Potash: Estimated [1] annual production capacity as of January 1 of the years shown*

Year	Capacity	Year	Capacity
	Tons K_2O		*Tons* K_2O
1910	0	1952	1,700,000
1920	55,000	1953	1,800,000
1930	91,000	1954	2,000,000
1940	540,000	1955	2,100,000
1950	1,250,000	1956	2,200,000
1951	1,400,000		

[1] U. S. Bureau of Mines (*871*) and other information.

TABLE 64.—*Potash: Number of plants, total production, sales, stocks on hand, foreign trade, and consumption as fertilizer, annually 1915–53*

Calendar year	Potassium salts [1]						Imports [4]	Consumption as fertilizer [5]
	Producing plants [2]	Production		Sales	Producers' stocks on hand, Dec. 31	Exports [3]		
		Salts	Potash					
	Number	*Tons*	*Tons* K_2O	*Tons* K_2O	*Tons* K_2O	*Tons* K_2O	*Tons* K_2O	*Tons* K_2O
1915	5	4,374	1,090	[6] 1,090		[7]	42,519	81,000
1916	25	35,739	9,720	[6] 9,720		[7]	1,726	16,000
1917	46	126,061	32,573	[6] 32,573		[7]	504	33,000
1918	77	207,686	54,803	38,580		[7]	261	46,000
1919	67	116,934	32,474	45,728		[7]	28,484	88,000
1920	49	166,834	48,077	41,444	8,999	[7]	197,795	257,000
1921	20	25,485	10,171	4,408	12,825	[7]	64,126	189,000
1922	12	25,176	11,714	11,313	11,653	2,630	186,284	226,000
1923	12	39,029	20,215	19,281	12,363	1,687	194,210	237,000
1924	12	43,734	22,903	21,880	10,770	1,923	187,079	259,000
1925	9	51,565	25,448	25,802	10,276	2,155	239,187	283,000
1926	7	46,324	23,366	25,060	9,000	1,065	245,700	290,000
1927	9	76,819	43,510	49,500	2,500	7,751	225,000	286,000
1928	9	104,129	59,910	69,370	2,100	4,877	310,000	333,000
1929	5	107,820	61,590	57,540	6,200	7,442	207,000	338,200
1930	5	105,810	61,270	56,610	11,000	9,735	322,370	354,351
1931	6	133,020	63,880	63,770	10,500	14,923	194,100	274,775
1932	5	143,120	61,990	55,620	28,000	945	96,170	191,612
1933	4	333,110	143,378	139,067	20,891	12,800	140,000	222,266
1934	8	275,732	144,342	114,122	50,066	15,055	158,277	262,770
1935	10	357,974	192,703	224,721	18,060	45,590	228,556	306,628
1936	7	431,470	247,340	222,810	34,000	62,979	197,404	350,142
1937	7	486,090	284,497	266,938	55,620	62,384	337,239	416,113
1938	9	534,945	316,951	286,437	87,440	51,800	186,654	393,476
1939	6	546,757	312,201	366,287	29,440	83,800	94,207	409,094
1940	7	658,249	379,679	393,058	16,370	62,838	115,241	435,030
1941	7	986,458	524,875	531,346	9,712	56,873	13,185	466,763
1942	7	1,267,455	679,206	680,831	6,041	49,120	2,915	547,016
1943	7	1,428,840	739,141	732,151	13,984	76,007	17,005	642,833
1944	6	1,578,498	834,568	817,892	29,763	68,880	3,760	649,606
1945	7	1,588,305	874,243	870,370	34,253	67,583	3,871	752,005
1946	7	1,687,735	931,812	928,374	37,999	65,643	2,564	853,828
1947	7	1,905,776	1,029,875	1,053,226	14,697	68,102	25,286	879,223
1948	7	2,138,493	1,139,881	1,143,339	11,211	69,733	26,002	956,112
1949	8	2,056,609	1,118,395	1,120,653	9,065	69,558	17,695	1,064,193
1950	7	2,242,647	1,287,724	1,276,104	20,620	65,047	193,926	1,215,357
1951	9	2,474,870	1,420,323	1,408,408	32,302	68,654	307,921	1,412,639
1952	10	2,868,462	1,665,113	1,598,351	98,244	56,281	188,115	1,607,932
1953	10	3,266,429	1,911,891	1,731,607	278,508	48,558	126,132	1,719,532

[1] U. S. Geological Survey (*807*) and U. S. Bureau of Mines (*871*); used in both the chemical and fertilizer industries.

[2] Includes cement-flue dust producers and excludes producers of wood ashes or cotton-hull ashes.

[3] Calculated from the tonnages and estimated potash contents of the materials exported; includes reexports.

[4] U. S. Geological Survey (*807*) and U. S. Bureau of Mines (*871*); used chiefly as fertilizers and exclusive of those used chiefly in the chemical industries.

[5] Includes Hawaii and Puerto Rico. 1915–42, estimated; 1943–53, based on Branch surveys. These data include the potash contents of organic material, ashes, and other materials not included in data on potassium salts. The potash content of such materials has averaged about 20,000 tons in recent years.

[6] Production and sales were practically the same from 1915 to 1917, and no distinction was made between them.

[7] Only small quantities of materials for which no specific potash value can be assigned.

TABLE 65.—*Potash: Deliveries of domestic and imported potash, by regions and States and Territories, calendar years 1940–54* [1]

State and region or Territory	1940	1941	1942	1943	1944	1945	1946	1947		1948		1949		1950		1951		1952		1953		1954	
								Domestic	Imported	Domestic	Imported	Domestic	Imported	Domestic	Imported	Domestic	Imported	Domestic	Imported	Domestic	Imported	Domestic	Imported
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Maine	7,109	4,629	10,084	12,830	14,548	14,479	14,074	16,810	0	16,934	0	13,212	781	9,306	5,213	7,053	3,283	8,604	11,984	7,563	1,224	5,491	5,557
New Hampshire	0	0	0	0	0	72	24	81	0	40	0	54	0	9	0	52	0	0	0	18	0	0	0
Vermont	257	328	184	407	231	455	284	569	0	322	0	580	0	461	9	832	0	475	0	519	0	461	0
Massachusetts	8,577	9,206	10,801	11,763	13,084	11,628	13,825	12,831	0	12,218	0	11,681	0	11,400	1,843	10,690	6,091	8,246	4,816	9,051	6,861	10,586	1,741
Rhode Island	93	123	62	177	104	142	24	24	0	0	0	86	0	282	0	389	582	609	647	794	472	1,664	0
Connecticut	2,668	3,254	4,309	3,645	4,465	4,703	5,033	5,020	0	4,570	0	4,182	0	4,974	0	4,278	0	4,009	0	4,568	0	4,814	0
New England	18,809	17,540	25,440	28,822	32,442	31,479	33,264	35,335	0	33,084	0	29,795	781	26,435	7,058	23,094	10,256	21,943	17,447	23,414	8,557	23,016	7,298
New York	8,652	10,260	8,726	10,706	12,167	13,982	15,259	15,858	0	17,883	0	16,997	0	18,329	8,407	25,593	11,656	27,872	3,169	28,337	1,053	29,984	1,056
New Jersey	17,183	22,921	22,732	25,774	29,938	28,914	32,564	32,603	0	32,959	0	31,142	0	25,108	2,703	17,259	4,226	24,843	11,130	30,596	6,557	32,995	5,976
Pennsylvania	6,229	9,145	13,233	13,860	15,377	16,183	16,544	19,029	0	23,203	0	18,146	686	16,877	4,032	24,998	2,056	28,730	3,801	36,416	3,533	35,143	609
Delaware	1,130	2,374	3,814	3,446	3,494	3,112	3,851	3,654	0	3,863	0	4,538	0	3,965	0	4,229	497	5,946	494	5,810	0	6,051	0
Maryland	21,252	26,122	41,163	37,625	44,304	47,542	45,704	46,464	6,522	43,689	7,040	39,431	7,737	34,342	47,238	27,752	60,520	33,351	44,193	41,943	27,167	51,008	21,890
District of Columbia	37	69	115	125	74	84	142	97	0	119	0	125	0	187	0	121	0	147	0	235	0	442	0
West Virginia	26	240	141	233	158	96	167	398	0	316	0	347	0	592	0	767	0	885	0	1,105	0	1,249	0
Middle Atlantic	54,539	71,651	90,947	91,769	105,512	109,913	114,231	118,103	6,522	119,231	7,040	110,726	8,397	102,400	62,378	100,719	78,055	121,774	62,767	144,441	39,210	159,872	29,521
Virginia	42,033	41,029	50,003	53,999	53,342	56,813	58,998	60,399	11,027	65,290	4,386	59,271	5,374	58,674	39,372	47,910	52,707	67,829	39,957	72,517	24,683	68,668	40,188
North Carolina	18,255	30,161	41,261	44,770	48,583	47,872	55,441	64,102	1,883	66,385	2,555	67,046	0	64,039	13,797	70,469	25,214	76,887	13,193	79,369	12,721	83,834	9,518
South Carolina	17,557	29,616	40,347	36,703	41,374	42,478	43,715	51,834	979	50,372	523	47,660	0	46,423	12,030	45,190	23,093	50,849	9,657	51,377	6,200	58,288	4,233
Georgia	22,841	49,544	54,233	59,983	64,619	64,816	70,709	81,021	5,642	85,897	2,650	80,533	2,639	77,681	20,380	84,876	32,716	102,941	18,181	103,782	12,517	119,869	6,833
Florida	29,334	36,403	41,519	43,436	51,871	57,354	62,369	60,032	0	59,595	817	62,226	0	60,476	23,619	70,451	22,350	74,982	15,505	82,462	16,406	84,753	9,448
South Atlantic	121,020	176,753	227,383	240,891	259,689	269,133	291,252	317,268	19,531	327,539	10,931	316,735	8,013	308,292	109,707	318,996	156,070	373,488	85,563	394,507	72,527	421,201	70,217
Ohio	27,628	37,179	45,273	42,486	54,162	59,987	63,574	74,819	0	88,533	0	90,686	0	104,657	0	121,977	0	155,622	0	158,062	0	174,727	0
Indiana	14,343	19,382	27,172	26,867	35,434	36,852	39,615	48,990	0	54,472	0	56,471	0	73,593	0	90,092	0	105,802	0	116,243	0	143,052	0
Illinois	14,537	16,853	23,778	30,518	45,913	55,916	64,222	77,486	0	83,111	0	78,547	0	114,270	0	136,783	0	169,826	0	204,170	0	216,041	0
Michigan	5,370	6,689	7,131	7,908	9,996	11,717	12,430	12,827	0	15,276	0	17,961	0	22,290	0	27,628	0	35,896	0	39,912	0	48,469	0
Wisconsin	1,624	1,677	2,491	2,637	3,409	6,429	9,943	15,513	0	22,146	0	25,707	0	34,645	0	37,797	0	40,387	0	50,973	0	53,395	0
East North Central	63,502	81,780	105,845	110,436	148,912	170,892	189,784	229,640	0	263,538	0	269,374	0	349,664	0	414,277	0	506,333	0	569,261	0	637,184	0
Minnesota	494	626	1,215	1,073	1,177	2,724	4,201	6,508	0	12,098	0	16,634	0	25,944	0	27,720	0	27,704	0	40,986	0	43,231	0
Iowa	327	262	790	737	660	826	2,691	5,416	0	13,407	0	13,551	0	19,240	0	21,955	0	33,463	0	35,850	0	44,055	0
Missouri	336	436	360	367	360	3,612	2,985	4,859	0	7,372	0	13,632	0	15,202	0	23,819	0	35,751	0	36,984	0	47,028	0
North Dakota	100	11	65	121	174	180	410	454	0	597	0	1,173	0	1,280	0	1,544	0	2,041	0	2,222	0	2,468	0
Nebraska	0	0	0	0	0	0	0	26	0	509	0	261	0	710	0	949	0	1,204	0	2,279	0	2,090	0
Kansas	54	104	0	0	0	0	24	88	0	313	0	770	0	1,370	0	1,567	0	2,260	0	2,693	0	2,802	0
West North Central	1,313	1,439	2,433	2,298	2,391	7,344	10,311	17,351	0	34,282	0	46,039	0	63,746	0	77,774	0	102,493	0	[3] 120,944	0	[3] 141,805	0
Kentucky	2,093	2,977	3,684	5,513	5,612	6,091	8,661	8,264	0	12,352	0	13,783	0	19,171	0	21,640	0	28,824	0	35,606	0	45,519	0
Tennessee	7,129	8,448	14,095	19,214	20,572	21,801	23,338	27,509	0	33,263	0	30,966	0	37,449	0	53,541	0	62,646	0	59,140	0	76,308	0
Alabama	[2,247]	16,269	20,999	24,243	25,936	25,636	28,319	35,970	0	37,541	268	42,333	0	46,393	1,877	55,670	12,893	59,984	5,456	61,625	0	60,505	0
Mississippi	4,573	5,771	10,481	10,464	11,306	11,132	13,315	16,535	0	19,079	0	22,755	0	20,078	2,154	32,620	1	33,131	0	27,526	0	29,708	0
East South Central	28,042	33,465	49,256	59,434	62,726	65,260	73,833	88,278	0	102,255	268	109,857	0	131,099	4,031	163,469	12,894	184,555	5,456	173,097	0	212,020	0
Arkansas	2,297	5,293	8,280	9,255	7,421	7,801	9,572	13,535	0	19,057	0	19,873	0	28,121	0	33,341	0	35,859	0	39,462	0	42,185	0
Louisiana	7,299	8,946	12,856	14,287	14,671	13,371	16,934	17,748	0	19,338	0	19,654	0	24,742	2,986	20,546	17,658	25,307	1,746	25,103	0	28,470	0
Oklahoma	69	102	31	0	0	0	0	0	0	863	0	836	0	1,611	0	2,784	0	3,612	0	2,815	0	1,168	0
Texas	2,480	4,694	3,938	1,937	4,093	4,336	5,880	8,149	0	9,873	0	9,655	0	15,193	0	21,361	6,151	30,786	0	26,538	0	34,905	0
West South Central	[2,136]	19,035	25,105	28,479	26,085	25,508	32,442	39,432	0	49,131	0	49,418	0	69,667	2,986	84,032	23,807	95,854	1,746	94,008	0	109,734	0

Montana	24	0	0	0	24	27	27	51	0	176	0	123	0	155	0	214	0	32	0	64	0	59	0
Idaho	27	46	1	61	115	264	277	256	0	267	0	257	0	355	0	271	0	347	0	367	0	415	0
Colorado	67	29	68	75	200	222	505	641	0	910	0	937	0	912	0	867	0	888	0	774	0	528	0
New Mexico	2	3	3	0	1	2	5	0	0	250	0	374	0	215	0	76	0	71	0	56	0	50	0
Arizona	0	0	0	0	0	0	70	222	0	742	0	956	0	914	0	3711	0	402	0	435	0	584	0
Utah	32	12	125	143	93	20	45	230	0	285	0	115	0	316	0	398	0	233	0	426	0	191	0
Nevada	0	0	[2] 0	[2] 0	0	0	0	0	0	50	0	0	0	0	0	0	0	[3] 0	0	0	0	0	0
Mountain	152	90	[3] 197	[2] 279	439	535	932	1,430	0	2,683	0	2,762	0	2,867	0	2,105	0	1,073	0	2,122	0	1,897	0
Washington	1,660	1,225	1,587	2,078	2,762	2,475	3,132	3,468	0	4,770	0	3,609	0	3,539	0	3,623	0	1,471	0	4,819	0	5,491	0
Oregon	995	976	1,097	669	880	1,160	1,892	2,240	0	3,060	0	3,504	0	3,459	0	3,206	0	2,954	0	3,042	0	3,606	0
California	4,087	6,524	9,113	9,037	10,412	11,491	12,607	19,517	0	19,565	0	13	13	0	[3] 18,154	0	16,918	0	13,778	0	13,203	0	13,479	0
Pacific	6,742	8,725	11,797	11,784	14,051	15,016	17,541	25,231	0	27,393	0	20,246	0	25,152	0	23,747	0	21,103	0	21,154	0	21,976	0
Continental United States	304,255	410,495	[3] 556,406	[3] 574,302	652,260	695,080	763,590	672,093	26,053	959,141	18,239	954,943	17,191	1,077,912	150,158	1,208,214	281,932	1,419,601	173,019	1,542,949	120,284	1,727,774	107,036
Hawaii	8,240	10,984	12,192	4,988	8,336	10,766	8,350	13,183	0	9,153	0	11,535	0	13,430	0	14,213	0	16,451	0	19,437	0	18,252	0
Puerto Rico	15,974	14,465	7,241	11,689	15,191	19,047	18,958	21,295	0	19,471	0	14,320	0	22,843	1,895	9,901	17,865	10,798	6,270	12,876	3,823	13,831	7,166
Territories	24,214	25,452	19,433	16,677	23,527	29,813	27,338	34,478	0	28,624	0	25,855	0	36,273	1,895	24,114	17,865	27,249	6,270	32,313	3,823	32,083	7,166
Deliveries not distributed above [5]	126,000	33,000	5,000	18,000	4,000	4,000	3,000	5,000	350	6,000	4	13,000	953	10,000	3,025	10,000	2,559	12,000	14,135	12,000	8,641	10,000	4,122
Total	454,469	468,950	580,839	609,179	679,787	728,893	793,928	911,570	26,403	993,765	18,243	993,798	18,144	1,124,185	191,068	1,242,328	302,406	1,458,850	193,424	1,587,261	132,958	1,769,857	118,344

[1] 1940–46, deliveries of domestic potash. The American Potash Institute (*21*) gives total deliveries and Turrentine (*247*) and Siederman (*229*) give deliveries of domestic production. The data for the imported potash is the difference between total deliveries and deliveries of domestic production. These figures do not include the potash content of natural organics, potassium carbonate, or ashes produced in this country. The potash content of cement-flue dust, alunite, and distillery waste are included in the undistributed figures at the bottom of the table. There were no deliveries in Wyoming. Deliveries do not necessarily correspond to consumption in any State due to shipments across State lines.

[2] Includes 34 tons delivered in South Dakota in 1953 and 122 tons in 1954.

[3] Revised. Originally 517 tons was reported delivered in Nevada in 1942 and 122 tons in 1943. This was chemical- rather than fertilizer-grade material.

[4] The original figures for 1942 and 1943 did not include the deliveries of 18,000 and 110 tons, respectively, that were not broken down by States.

[5] Estimated deliveries by several companies not covered in American Potash Institute reports and imports not shown by States. The imports not distributed from 1947 to 1954 are the computed potash content of wood ashes, potassium nitrate, and nitrate of soda-potash, which are not included in the statistics published by the American Potash Institute (*21*).

TABLE 66.—*Potash: Deliveries of potash of American origin in continental United States, by type of material, 1937–54* [1]

Calendar year	Potash in form of—				Total
	60-percent potassium chloride	50-percent potassium chloride	Manure salts	Sulfates	
	Tons K_2O	*Tons* K_2O	*Tons* K_2O	*Tons* K_2O	*Tons* K_2O
1937	100,474	22,499	8,219	0	191,192
1938	168,373	38,281	4,490	59	209,212
1939	184,747	40,102	3,734	4,815	233,398
1940	241,598	41,850	4,233	16,570	304,251
1941	307,807	44,016	28,627	29,948	410,488
1942	433,422	40,780	40,008	42,140	556,410
1943	431,146	48,420	49,006	45,730	574,302
1944	503,082	50,266	47,971	50,941	652,260
1945	545,429	61,352	34,404	53,831	695,076
1946	615,098	61,585	21,453	65,454	763,590
1947	694,534	67,714	45,005	64,846	872,099
1948	750,474	70,803	67,136	70,729	959,142
1949	761,685	87,080	45,205	60,064	954,943
1950	926,603	68,626	4,868	77,815	1,077,912
1951	1,041,028	77,948	4,648	84,590	1,208,214
1952	1,256,452	72,204	2,081	88,885	1,419,602
1953	[2] 1,452,748	[3]	1,439	88,761	1,542,948
1954	[2] 1,623,573	[3]	1,313	102,888	1,727,774

[1] Turrentine (*247*) and Siederman (*229*). The deliveries not distributed by States in table 65 do not apply to this table since they consist of alunite, distillery waste, cement-flue dust, or other material. Small differences in the totals in the 2 tables are caused by rounding off figures.
[2] Includes 50-percent potassium chloride.
[3] Included in 60-percent potassium chloride.

TABLE 67.—*Potash: Consumption, by regions and States and Territories, 1930–53* [1]

Calendar year	New England							Middle Atlantic							
	Maine	N. H.	Vt.	Mass.	R. I.	Conn.	Total	N. Y.	N. J.	Pa.	Del.	D. C.	Md.	W. Va.	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	15,100	620	1,011	3,364	446	3,981	24,522	12,845	10,795	15,698	2,159	40	9,514	1,750	52,801
1931	14,770	676	888	3,792	407	3,984	24,417	12,769	10,197	13,274	1,991	35	7,635	1,600	47,501
1932	14,136	676	674	3,312	400	3,073	22,271	10,563	9,291	10,974	1,884	30	6,512	1,288	40,542
1933	13,702	772	557	2,848	502	2,849	21,230	11,475	8,594	10,621	1,652	40	6,985	1,408	40,775
1934	15,594	944	771	3,594	735	3,013	24,651	11,868	9,305	12,944	2,106	45	7,996	1,656	45,920
1935	14,625	1,072	857	3,670	640	3,213	24,086	14,250	10,459	14,752	2,533	50	9,989	1,925	53,958
1936	15,880	1,139	895	3,817	650	3,386	25,747	15,435	11,573	15,980	2,925	55	10,334	1,980	58,282
1937	17,500	994	1,195	4,330	737	4,303	29,059	15,050	13,355	17,398	3,379	60	12,382	2,204	63,778
1938	17,500	913	1,152	4,171	842	3,380	27,958	14,314	12,536	17,742	2,926	56	11,099	2,140	60,813
1939	16,983	756	922	4,120	782	3,859	27,422	14,288	13,283	17,871	2,776	60	11,330	2,418	62,044
1940	17,732	965	1,154	4,322	770	3,946	28,889	16,498	12,242	17,837	2,844	70	10,629	2,362	62,482
1941	20,216	1,073	1,191	4,577	878	4,069	31,994	17,776	15,729	20,170	2,829	78	11,761	2,638	70,981
1942	23,820	1,888	3,423	5,733	1,022	4,592	40,478	20,553	16,425	22,638	3,268	70	13,942	2,817	79,513
1943	[2] 27,799	1,689	1,716	6,006	1,211	5,442	[2] 43,863	24,610	18,281	[2] 25,094	3,649	85	14,342	2,867	[2] 89,528
1944	[2] 26,701	[2] 1,506	[2] 1,273	[2] 5,940	[2] 1,147	[2] 5,433	[2] 42,000	[2] 25,825	[2] 20,079	[2] 26,436	[2] 3,990	[2] 76	[2] 14,397	[2] 2,548	[2] 93,357
1945	31,563	1,878	2,626	6,031	1,370	5,507	48,375	29,813	20,821	30,780	3,907	64	15,576	2,098	103,659
1946	32,056	1,812	2,309	6,052	1,356	5,248	48,923	29,778	21,725	33,880	4,326	86	16,859	3,377	110,031
1947	29,548	1,646	2,433	5,364	1,262	5,255	46,008	26,816	21,257	33,081	3,914	89	16,868	3,423	105,448
1948	28,824	1,377	2,335	6,085	1,485	5,655	45,761	31,359	20,817	34,558	3,965	77	15,974	3,525	110,275
1949	28,385	2,156	4,519	6,414	1,626	6,289	49,389	34,583	22,794	38,931	4,590	88	17,143	3,964	122,099
1950	22,944	2,154	4,656	7,207	1,647	6,516	45,124	34,945	22,074	41,971	4,861	130	17,022	4,619	126,228
1951	20,258	2,194	5,803	8,103	1,388	6,849	44,685	38,712	23,187	47,006	6,289	107	20,711	6,095	142,167
1952	20,353	2,158	6,318	8,138	1,592	6,686	51,155	44,159	25,179	54,120	7,798	130	23,439	6,835	161,660
1953	24,886	2,244	4,501	7,216	1,409	7,550	47,866	45,109	24,917	60,841	9,178	132	26,173	6,615	173,025

See footnotes at end of table, p. 74.

TABLE 67.—*Potash: Consumption, by regions and States and Territories, 1930–53* [1]—Continued

Calendar year	South Atlantic						East North Central					
	Va.	N. C.	S. C.	Ga.	Fla.	Total	Ohio	Ind.	Ill.	Mich.	Wis.	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	18,100	38,634	26,148	38,030	30,783	151,895	13,188	15,546	2,798	8,135	4,435	44,102
1931	15,757	28,502	18,907	23,500	23,384	110,050	11,703	12,402	2,389	5,595	[3] 3,750	35,839
1932	10,200	18,739	13,012	11,472	20,243	73,666	5,959	5,127	1,193	5,477	1,983	19,739
1933	10,396	26,170	20,025	16,068	21,550	94,209	9,111	6,568	1,078	5,200	1,255	23,212
1934	10,551	30,954	21,117	20,543	27,159	110,324	10,103	9,710	1,093	4,962	1,680	27,548
1935	12,492	30,303	23,315	24,697	26,767	126,574	13,364	15,069	1,573	6,911	2,481	39,398
1936	13,527	43,963	25,058	28,065	32,805	143,418	15,408	19,922	2,242	8,195	2,758	48,525
1937	17,177	50,072	32,390	36,387	37,661	173,687	19,632	19,444	2,727	9,783	3,871	55,457
1938	16,612	47,033	29,743	33,806	36,106	164,200	18,870	18,208	3,122	9,355	4,081	53,636
1939	18,103	52,378	32,763	33,643	36,024	172,911	20,286	18,577	3,632	10,701	3,990	55,186
1940	17,452	50,176	37,391	35,162	33,324	173,505	22,744	24,990	4,323	12,642	5,699	70,398
1941	18,200	49,940	36,277	37,494	42,239	184,150	26,493	24,514	5,270	13,510	8,418	78,205
1942	18,210	66,998	38,289	36,809	40,279	200,585	33,085	32,793	7,117	22,085	21,939	117,019
1943	25,668	75,196	40,906	53,574	55,515	256,859	36,476	35,452	10,247	18,139	[2] 12,234	[2] 112,548
1944	[2] 26,116	[2] 60,871	[2] 41,397	[2] 48,946	[2] 54,397	[2] 240,727	[2] 41,304	[2] 40,498	[2] 12,444	[2] 21,991	[2] 17,135	[2] 133,372
1945	28,688	79,897	43,893	50,234	57,795	260,497	46,239	48,035	21,908	26,647	24,470	167,299
1946	32,052	94,340	50,373	59,904	62,488	299,657	51,658	52,527	29,371	27,249	27,955	188,760
1947	33,534	96,878	48,608	55,403	50,259	284,682	56,344	56,850	31,903	29,866	31,147	206,110
1948	36,130	93,753	49,868	52,716	45,038	287,505	65,016	70,385	46,202	33,713	42,455	258,361
1949	41,986	111,079	56,343	69,198	55,085	333,691	79,095	73,668	47,283	39,420	41,278	282,694
1950	50,896	119,637	56,960	66,013	68,526	362,032	88,040	91,757	59,764	47,323	52,513	339,397
1951	60,747	122,661	57,646	84,574	79,552	405,180	98,938	106,601	91,697	57,858	56,699	411,793
1952	71,341	131,020	68,920	93,458	80,546	445,285	123,649	129,280	120,864	67,830	54,747	496,370
1953	71,919	132,368	66,022	95,677	89,554	456,440	125,030	148,868	145,637	73,055	66,325	558,915

Calendar year	West North Central							East South Central				
	Minn.	Iowa	Mo.	N. Dak.	S. Dak.	Nebr.	Kans.	Total	Ky.	Tenn.	Ala.	Miss.	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	1,044	1,700	875	0	0	5	55	3,679	6,076	4,393	25,258	9,568	45,295
1931	1,885	1,606	745	0	0	1	30	4,267	4,475	3,190	12,476	4,581	24,728
1932	1,103	800	397	0	0	0	18	2,378	2,391	1,807	8,134	2,240	14,572
1933	774	300	470	0	0	0	25	1,569	2,074	2,320	11,436	3,000	18,830
1934	1,234	403	899	2	0	3	57	2,598	1,800	2,652	14,651	4,859	23,962
1935	1,316	400	1,259	2	0	5	95	3,077	2,058	3,279	17,318	6,891	29,546
1936	1,149	499	2,078	2	0	0	135	3,863	2,476	4,106	19,690	6,836	33,108
1937	1,255	622	1,963	4	2	15	244	4,105	3,161	4,946	27,687	10,099	45,893
1938	1,325	753	1,835	7	2	7	256	4,185	3,299	4,490	20,550	10,068	38,407
1939	1,308	728	1,727	11	0	10	145	3,929	3,588	4,814	22,000	10,484	40,886
1940	1,494	882	2,029	19	3	17	205	4,649	3,347	5,288	23,223	9,468	41,326
1941	1,730	1,240	2,319	21	5	18	150	5,483	3,870	5,163	22,709	8,756	40,504
1942	2,514	2,437	2,872	24	5	24	64	7,940	5,066	5,972	23,419	12,412	47,869
1943	3,757	3,135	4,414	89	11	47	299	11,752	7,234	12,343	31,629	15,543	66,749
1944	[2] 4,462	[2] 4,051	[2] 5,209	[2] 252	[2] 10	[2] 2	[2] 390	[2] 14,966	[2] 9,179	[2] 11,480	[2] 27,177	[2] 14,540	[2] 62,376
1945	6,626	8,246	6,870	566	19	4	575	22,906	11,704	13,921	30,721	14,716	71,062
1946	8,799	10,463	10,285	861	139	40	1,022	31,609	15,412	17,384	35,770	19,377	87,943
1947	11,579	11,198	14,231	1,206	115	42	1,264	39,695	18,335	18,645	44,834	18,638	100,452
1948	15,201	14,781	18,391	1,360	91	90	2,152	52,066	21,296	21,551	44,231	23,454	110,532
1949	15,852	14,758	20,268	1,082	40	191	1,233	53,424	25,568	21,807	55,226	25,356	128,957
1950	20,813	17,010	27,363	1,116	52	220	1,763	68,337	31,601	29,751	59,184	28,622	149,158
1951	22,287	21,696	39,897	1,238	90	351	2,405	87,964	36,821	39,107	69,905	35,240	181,073
1952	23,358	23,442	54,199	1,503	136	567	3,832	107,037	49,778	48,394	71,242	36,674	206,088
1953	32,415	40,267	58,470	1,492	167	1,166	3,648	137,625	50,030	45,443	66,400	35,943	197,816

See footnotes at end of table, p. 74.

TABLE 67.—*Potash: Consumption, by regions and States and Territories, 1930–53* [1]—Continued

Calendar year	West South Central					Mountain								
	Ark.	La.	Okla.	Tex.	Total	Mont.	Idaho	Wyo.	Colo.	N. Mex.	Ariz.	Utah	Nev.	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	2,681	5,074	397	4,967	13,119	1	5	0	8	2	20	0	3	39
1931	2,682	2,727	426	2,500	8,335	1	2	0	26	1	11	14	7	62
1932	432	1,363	168	1,046	3,009	0	4	1	12	0	10	8	11	46
1933	722	1,636	110	1,229	3,697	1	6	1	7	1	8	5	14	43
1934	1,622	2,105	270	1,031	5,928	2	6	3	13	2	2	7	18	53
1935	1,240	2,674	334	2,682	6,930	15	63	5	12	3	17	2	9	126
1936	1,957	3,068	289	2,642	7,956	30	33	8	10	13	16	10	8	128
1937	2,788	4,920	250	3,542	11,500	60	65	18	53	16	73	15	10	310
1938	3,010	4,783	302	3,010	11,105	55	243	18	105	2	39	25	10	497
1939	3,628	5,216	339	3,455	12,638	50	2	0	91	3	20	12	10	188
1940	5,102	4,999	187	4,443	14,731	45	8	0	201	5	39	15	10	323
1941	5,275	5,806	321	5,015	16,417	45	15	0	141	20	38	14	10	283
1942	8,246	6,168	407	5,006	19,827	5	146	0	195	4	50	10	6	416
1943	10,749	8,108	529	8,132	27,518	11	264	6	145	23	92	26	1	568
1944	[2]9,160	[2]6,411	[2]612	[2]5,908	[2]22,091	[2]2	[2]213	[2]2	[2]78	[2]32	[2]427	[2]20	[2]4	[2]778
1945	9,417	6,594	589	7,044	23,644	4	597	1	230	66	258	47	15	1,218
1946	12,212	9,127	1,194	9,298	31,741	37	820	10	265	29	191	74	5	1,431
1947	12,215	7,850	1,104	10,021	31,190	25	699	2	737	40	476	69	8	2,056
1948	13,381	[2]527	1,693	10,271	34,872	76	394	20	824	46	537	87	17	2,001
1949	16,966	15,087	2,169	12,074	41,296	37	274	26	1,217	112	551	57	3	2,277
1950	23,029	14,396	3,232	16,411	57,068	54	237	60	1,274	42	436	93	13	2,209
1951	33,253	16,938	4,732	17,206	72,129	34	269	29	966	108	702	190	29	2,321
1952	30,407	19,025	6,681	20,604	77,597	43	189	23	1,323	55	553	245	33	2,464
1953	37,890	18,399	4,963	19,535	80,793	49	283	51	862	50	833	149	36	2,313

Calendar year	Pacific				Territories				Continental United States	United States and Territories
	Wash.	Oreg.	Calif.	Total	Hawaii	Puerto Rico	Alaska	Total		
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1930	1,453	705	3,589	5,747	6,975	6,172	5	13,152	341,199	354,351
1931	1,184	620	4,003	5,807	6,770	6,991	8	13,769	261,006	274,775
1932	708	593	2,717	4,018	6,271	5,092	8	11,371	180,241	191,612
1933	640	578	2,659	3,877	7,384	7,233	7	14,624	207,442	222,266
1934	706	565	3,787	5,058	6,860	9,858	10	16,728	246,042	262,770
1935	842	672	4,825	6,339	6,650	9,933	11	16,594	290,034	306,628
1936	1,305	800	6,468	8,573	7,670	12,860	12	20,542	329,600	350,142
1937	1,736	900	6,658	9,294	9,225	13,776	29	23,030	393,083	416,113
1938	1,782	1,080	6,146	8,928	10,248	13,473	26	23,747	369,729	393,476
1939	1,553	1,103	6,074	8,730	10,560	14,583	17	25,160	383,934	409,094
1940	1,445	1,231	5,852	8,528	11,043	19,142	14	30,199	404,831	435,030
1941	1,540	1,240	7,342	10,122	11,125	17,484	15	28,624	438,139	466,763
1942	3,158	1,241	8,914	13,313	10,880	9,152	24	20,056	526,960	547,016
1943	2,326	1,374	10,866	14,566	8,642	10,269	31	18,942	[2]623,891	[2]642,833
1944	[2]2,020	[2]1,062	[2]12,507	[2]15,598	[2]8,052	[2]15,604	25	[2]23,681	[2]625,325	[2]649,006
1945	2,960	1,875	18,209	23,044	10,006	20,281	20	30,301	721,704	752,005
1946	3,503	2,460	17,890	23,853	10,391	19,459	30	29,880	823,948	853,828
1947	3,354	2,760	14,719	20,833	11,047	20,756	46	32,749	846,474	879,223
1948	3,809	2,745	15,604	22,158	10,076	22,436	69	32,581	923,531	956,112
1949	3,225	2,837	14,030	20,092	11,449	18,767	58	30,274	1,033,919	1,064,193
1950	4,015	3,518	17,092	24,625	13,670	26,609	0	40,279	1,175,078	1,215,357
1951	3,973	2,990	17,337	24,300	14,966	26,616	45	41,027	1,371,612	1,412,639
1952	3,865	2,496	19,248	25,609	14,836	19,783	48	34,667	1,573,265	1,607,932
1953	4,809	2,701	21,099	28,609	16,857	19,127	56	36,040	1,683,492	1,719,532

[1] 1940–44, Mehring, Wallace, and Drain (*162*)—adjusted to include consumption in Alaska; other years, computed from tonnages of all fertilizers given in table 106 and the weighted average composition of fertilizers consumed in the State involved.

[2] Revised.

TABLE 68.—*Potash: Average rate of consumption per acre of harvested cropland, by regions and States, years ended June 30, 1939 and 1943–51* [1]

State and region	1939	1943	1944	1945	1946	1947	1948	1949	1950	1951
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Maine	27.65	43.71	43.79	49.62	52.42	46.20	48.98	46.12	48.37	38.97
New Hampshire	5.61	8.91	7.54	8.52	8.53	7.86	6.63	9.68	13.15	13.46
Vermont	1.71	3.37	2.29	3.22	3.80	4.15	3.83	6.75	9.34	9.34
Massachusetts	18.08	25.85	24.97	23.83	24.43	23.90	25.24	27.56	31.10	39.70
Rhode Island	27.81	45.24	41.96	47.35	45.83	45.93	53.05	58.92	73.95	62.04
Connecticut	19.85	28.06	27.39	26.42	25.34	26.61	27.18	29.03	37.49	39.80
New England	15.40	24.32	23.63	24.81	25.81	23.85	24.85	25.83	28.85	27.10
New York	4.26	7.23	7.21	8.93	8.55	8.54	9.03	10.23	11.24	12.42
New Jersey	34.05	42.02	46.87	47.35	46.93	50.70	48.81	57.83	51.21	55.76
Pennsylvania	5.79	8.55	7.97	9.59	10.05	10.96	11.17	12.31	14.21	15.23
Delaware	14.83	18.70	17.14	20.61	20.58	19.37	19.58	22.10	22.59	27.91
Maryland	13.96	17.73	15.70	18.57	19.33	19.87	19.10	20.04	22.43	25.36
West Virginia	3.14	3.55	3.34	3.70	4.30	4.94	5.11	5.63	6.78	8.63
Middle Atlantic	7.21	10.35	10.09	11.87	11.96	12.61	12.67	14.18	15.38	17.13
Virginia	8.74	11.32	12.07	14.58	15.92	16.86	18.36	21.36	26.07	33.12
North Carolina	16.17	21.66	21.75	25.08	28.14	31.02	30.16	34.18	35.89	40.38
South Carolina	13.06	18.32	18.12	20.42	21.13	21.51	23.48	26.30	25.47	29.08
Georgia	7.46	11.97	12.84	13.17	14.83	17.96	17.40	18.71	18.88	25.20
Florida	43.10	57.13	66.15	69.29	76.14	68.72	61.52	61.54	82.95	100.29
South Atlantic	13.03	18.32	19.54	21.70	24.01	25.39	25.09	27.61	30.38	36.85
Ohio	4.13	7.20	6.77	8.52	9.20	10.60	11.33	13.59	15.09	18.40
Indiana	3.24	8.02	6.57	8.44	9.66	9.89	11.29	13.88	14.69	19.20
Illinois	.39	1.02	1.08	1.83	2.66	2.93	3.83	4.81	4.79	7.41
Michigan	2.77	6.17	4.84	5.89	6.24	6.84	7.30	9.20	10.65	13.16
Wisconsin	.80	3.03	2.86	4.10	5.05	5.67	7.42	8.82	8.73	11.48
East North Central	1.95	4.59	3.92	5.19	5.98	6.53	7.60	9.29	9.84	12.93
Minnesota	.14	.37	.16	.63	.80	1.12	1.35	1.92	1.96	2.22
Iowa	.07	.28	.36	.69	.81	1.01	1.24	1.59	1.33	1.83
Missouri	.28	.57	.73	1.11	1.28	2.04	2.27	3.21	3.64	6.15
North Dakota	.001	.008	.02	.04	.07	.10	.14	.13	.12	.10
South Dakota	0	.001	.0007	.003	.006	.02	.01	.008	.004	.01
Nebraska	.001	.004	.0008	.0003	.002	.004	.008	.02	.02	.03
Kansas	.02	.01	.03	.04	.06	.10	.12	.20	.12	.24
West North Central	.07	.16	.20	.32	.39	.54	.67	.92	.89	1.26
Kentucky	1.24	2.28	3.10	4.32	5.09	6.65	7.78	9.41	12.16	13.75
Tennessee	1.57	3.48	3.40	4.54	5.91	5.69	7.10	8.00	9.81	14.24
Alabama	5.84	9.20	8.90	10.33	10.98	13.90	14.74	18.77	20.54	26.67
Mississippi	3.00	4.02	4.02	4.69	5.62	5.74	6.83	8.39	8.72	12.70
East South Central	3.08	4.85	4.85	6.00	6.96	8.09	9.14	11.17	12.69	16.70
Arkansas	1.11	3.25	2.93	3.60	3.82	3.70	4.23	6.01	7.39	12.15
Louisiana	2.18	3.90	3.46	3.56	5.30	4.33	5.14	6.04	8.40	11.14
Oklahoma	.03	.08	.09	.08	.15	.14	.23	.33	.55	.81
Texas	.26	.48	.47	.50	.61	.70	.73	.74	1.14	1.40
West South Central	.47	1.00	.88	.96	1.18	1.14	1.32	1.59	2.30	3.29
Montana	0	.003	.0008	.0005	.009	.006	.02	.009	.01	.01
Idaho	.0006	.13	.12	.25	.54	.43	.28	.16	.13	.14
Wyoming	0	.008	.002	.001	.01	.002	.02	.03	.05	.04
Colorado	.04	.05	.02	.05	.10	.11	.32	.32	.43	.37
New Mexico	.002	.02	.02	.09	.05	.05	.04	.11	.08	.15
Arizona	.06	.15	.87	.87	.11	1.04	.97	1.18	.94	1.11
Utah	0	.04	.03	.07	.13	.12	.14	.09	.14	.31
Nevada	.0095	0	.02	.06	.01	.04	.06	.02	.05	.04
Mountain	.01	.04	.06	.09	.12	.14	.18	.18	.18	.19
Washington	.74	1.31	.86	1.34	1.60	1.49	1.78	1.52	1.93	1.84
Oregon	.27	1.04	.70	1.05	1.45	1.91	1.78	1.88	2.27	2.07
California	1.85	2.62	2.63	4.12	5.05	3.57	3.35	3.01	3.60	4.33
Pacific	1.24	1.93	1.73	2.72	3.38	2.67	2.62	2.72	2.88	3.21
Continental United States	2.30	3.51	3.40	4.01	4.44	4.68	5.00	5.77	6.26	7.86

[1] Computed from the potash consumption (Branch surveys) and acreages of 74 crops, comprising the acreages for 52 principal crops [1939–50, U. S. Department of Agriculture (*298*); 1951, U. S. Bureau of Agricultural Economics (*264, 266, 267*)] and 22 fruit and nut crops [1939–46, Palmer, Schlotzhauer, and Kiesler (*193*); 1947–51, (*264*)].

TABLE 69.—*Potash: Average retail prices per unit (20 pounds) of potash in potassium chloride and average wholesale price per unit [1] by kind of material, decennial years 1880–1920 and annually 1920–52*

Calendar year	Retail prices of potassium chloride [2]	Wholesale prices of—					
		Potassium chloride [3]	Potassium sulfate [4]	Sulfate of potash-magnesia [4 5]	Domestic manure salts [3]	Imported kainit [2]	
						14 percent [6]	20 percent
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1880	0.82	0.60				0.50	
1890	.84	.71	0.98	0.91		.84	
1900	.85	.71	.86	.80		.74	
1910	.85	.70	.90	.88		.60	0.61
1920	3.06	2.40	3.41				
1921	2.12	.99				.77	.77
1922	1.06	.67	.90	.92		.55	.51
1923	.91	.63	.84	.90		.53	.47
1924	.94	.62	.86	.91		.53	.47
1925	.96	.62	.86	.91		.54	.48
1926	.97	.596	.854	.92	0.537	.57	.52
1927	.95	.646	.924	.98	.586	.63	.58
1928	1.02	.669	.957	1.02	.607	.66	.60
1929	1.01	.692	.962	1.03	.610	.66	.60
1930	.98	.681	.973	1.04	.618	.67	.61
1931	.93	.681	.973	1.04	.618	.69	.61
1932	.86	.681	.963	1.04	.618	.69	.59
1933	.92	.662	.804	.97	.601	.69	.56
1934	.94	.486	.751	.87	.483	.66	.47
1935	.60	.415	.684	.83	.444		.49
1936	.76	.464	.708	.87	.505		.56
1937	.76	.508	.767	.95	.556		.61
1938	.75	.523	.774	.88	.572		.62
1939	.76	.521	.751	.94	.570		.61
1940	.76	.517	.730	.95	.573		
1941	.80	.522	.780	1.16	.307		
1942	.89	.522	.810	1.17	.205		
1943	.88	.522	.786	1.15	.195		
1944	.89	.522	.777	1.15	.195		
1945	.89	.522	.777	1.15	.195		
1946	.92	.508	.769	1.12	.190		
1947	.95	.432	.706	.86	.195		
1948	1.04	.397	.681	.64	.195		
1949	1.10	.397	.703	.64	.195		
1950	1.03	.371	.716	.65	.195		
1951	1.04	.401	.780	.69	.200		
1952	1.04	.402	.792	.60	.200		

[1] These prices are higher than the weighted average of prices actually paid, because since 1926 more than 90 percent of the potash used as fertilizer has been bought on contract at seasonal discounts of 12 to 16 percent.

[2] 1880–1935 Mehring and Deming (*146*); 1936–52, computed from the data in "Agricultural Prices" (*266*, March 31, 1953, issue) and the average annual potash content obtained by averaging analyses published by the State fertilizer control officials.

[3] Bulk; cost, insurance, and freight, Atlantic and Gulf ports. Average of the weekly prices published in the "Oil, Paint, and Drug Reporter" (*1*). Manure salts have been quoted f.o.b. mines since June 1941, and all potash materials have been quoted f.o.b. mines since 1947.

[4] Bagged; cost, insurance, and freight, Atlantic and Gulf ports. Average of the weekly ton prices published in the "Oil, Paint, and Drug Reporter" (*1*) converted to unit prices. Since June 1947 prices quoted are f.o.b. mines.

[5] 1890–1939, imported material. Converted from ton prices on the basis of 26 percent potash. 1940–52, domestic material. Converted from ton prices on the basis of 22 percent potash.

[6] Prices before July 1922 were for 12.4 percent kainit.

TABLE 70.—*Kainit: Imports and consumption by uses, 1884, 1890, 1900, and annually 1909–46*

Calendar year	Imports [1]			Consumption	
	14 percent	20 percent	Total	In mixed fertilizers [2]	As separate material [3]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*
1884			[4] 27,009		
1890			[4] 70,415		
1900			[4] 209,986	54,700	
1909			183,616	347,104	
1910			652,061		
1911			631,632		
1912			573,413		
1913			521,176	445,706	
1914			351,506	448,885	
1915			7,475		
1916			40		
1917			0	1,375	1,000
1918			0	368	10
1919			57,427	31,145	20,000
1920			416,661		
1921			77,365		
1922			169,287		
1923			187,833		
1924			175,513		
1925			204,767	100,000	97,000
1926			203,702		87,000
1927			45,345		66,000
1928			119,897		50,000
1929			85,042	81,119	54,000
1930			125,454		52,000
1931			61,750	49,101	35,000
1932			55,200		25,000
1933			65,921		26,000
1934	21,413	107,275	128,688		31,000
1935	1,845	81,043	82,888	21,416	33,000
1936	1,616	57,677	59,293		24,000
1937	974	115,224	116,198	20,703	32,000
1938	402	59,811	60,213		29,000
1939	301	20,591	20,892	19,434	32,000
1940	0	36,175	36,175		28,000
1941	0	0	0		19,204
1942	0	0	0		3,000
1943	0	0	0		1,895
1944	0	0	0		166
1945	0	0	0		
1946	0	504	504		

[1] U. S. Bureau of Mines (*271*) and U. S. Geological Survey (*307*) except 1884, 1890, and 1900 which are from U. S. Bureau of Statistics (*276*). Before 1919 the total consisted largely of 12- and 14-percent grades. Some hartsalz, sylvinite, and other salts were included.

[2] 1900 and 1925, Mehring and Peterson (*149*); 1913–14, U. S. Federal Trade Commission (*300*); 1917 and 1918, Goldenweiser (*66*); other years, "Census of Manufactures" (*276*). Continental United States.

[3] Estimated from fertilizer tonnage reports of the various States. The bulk was consumed in the Southeastern States. For example, in 1940 South Carolina used 13,404 tons; North Carolina, 5,022; Georgia, 3,000; Mississippi, 1,548; and Florida, 1,404. For data for years ended June 30, 1934, 1939, and 1943 for individual States see Mehring and coworkers (*140, 146, 150*).

[4] Year ended June 30.

TABLE 71.—*Manure salts: Total production, foreign trade, total deliveries of salts of domestic origin, and consumption by uses, 1900 and annually 1910–54*

Calendar year	Production [1]	Imports [2]	Exports [3]	Deliveries [4]	Consumption	
					In mixed fertilizers [5]	As separate material [6]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1900		[7] 173,351			30,000	
1910		[8] 164,911				
1911		178,972				
1912		192,368				
1913		250,529			210,000	
1914		189,245			108,580	
1915		15,403				
1916		1,241				
1917		252			1,684	
1918		0			194	
1919		45,372			17,560	
1920		[9] 348,837				
1921		43,286				
1922		218,406				
1923		301,721				
1924		258,998				
1925		430,340			375,000	
1926		354,413				
1927		311,358				
1928		453,242				
1929		437,727			389,884	48,000
1930		[10] 405,215				
1931		200,600			217,448	31,000
1932		113,038				
1933		126,696				
1934		87,675				
1935		95,563		58,000	141,584	
1936		39,053		34,563		
1937		44,909		33,172	72,043	
1938		9,169		16,193		
1939		2,078		13,788	23,910	2,534
1940		442		16,263		
1941	154,979			127,898	107,000	6,000
1942	183,404		17,337	192,082	142,000	12,000
1943	242,189		19,379	213,210	171,000	21,947
1944	217,560		13,494	204,110	167,000	24,462
1945	115,798		10,321	140,819	122,000	15,102
1946	98,333			90,677	85,000	16,614
1947	174,145			184,224	112,363	18,983
1948	260,339	43		269,140	200,000	41,765
1949	177,315			180,578	150,000	36,752
1950	21,532			19,363	25,000	15,209
1951	19,775			18,600	15,000	7,522
1952	8,409			8,354		5,763
1953	4,628			5,742		3,670
1954				5,354		

[1] U. S. Bureau of Mines (*271*). Production of manure salts began in 1931, but the tonnages could not be revealed until 1941 when a third company began production.

[2] U. S. Bureau of Mines (*271*) and U. S. Geological Survey (*307*). 1900 to 1932, inclusive, sulfate of potash-magnesia, carnallite, abraum salts, hartsalz, sylvinite, and kieserite are included.

[3] U. S. Bureau of the Census (*284*). Included with "Potash salts, n.e.s." after 1915.

[4] Siederman (*229*) and Turrentine (*247*).

[5] 1900, 1913, and 1925, Mehring and Peterson (*149*); 1914, 1919, 1929, 1931, 1935, 1937, 1939, and 1947, U. S. Bureau of the Census (*276*); 1917 and 1918, Goldenweiser (*66*); other years, estimated. The original data from 1931 to 1939 were given on the basis of 20 percent potash. All data here are tons of manure salts as actually used. Continental United States.

[6] 1939 and 1943–53, based on Branch surveys; other years, estimates based on State fertilizer tonnage reports. Includes Hawaii and Puerto Rico.

[7] According to data on exports from Germany to United States 47,900 tons were 20 percent manure salts; 8,000 tons, sulfate of potash-magnesia; and 116,551 tons, of other material listed in footnote 2.

[8] According to data on exports from Germany to United States, 117,387 tons were 20 percent manure salts, 14,917 tons 30 percent manure salts, 14,154 tons sulfate of potash-magnesia, and the rest consisted of other salts.

[9] About 334,000 tons were 20 percent manure salts and 15,000 tons 30 percent manure salts.

[10] Approximately 375,000 tons were 20 percent manure salts and 30,000 tons 30 percent manure salts.

TABLE 72.—*Potassium chloride (muriate of potash): Total production, shipments, foreign trade, and consumption, by grades,[1] every fifth year 1870–1910 and annually 1910–54*

Calendar year	Production [2]		Domestic shipments in continental United States [3]		Imports [4]	Exports [5]		Re-exports [6] (50-percent K_2O)	Consumption as fertilizer				
									In Hawaii and Puerto Rico [7]		In continental United States		
											As separate material [8]		In mixed fertilizers [9]
	50-percent K_2O	60-percent K_2O	50-percent K_2O	60-percent K_2O		50-percent K_2O	60-percent K_2O		50-percent K_2O	60-percent K_2O	50-percent K_2O	60-percent K_2O	
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1870	0	0	0	0	[10] 150	0	0	----	0	0	----	0	0
1875	0	0	0	0	[10] 5,871	0	0	----	0	0	----	0	5,000
1880	0	0	0	0	[10] 12,012	0	0	----	0	0	----	0	12,000
1885	0	0	0	0	[10] 20,426	0	0	----	0	0	1,000	0	18,000
1890	0	0	0	0	[10] 31,470	0	0	----	0	0	1,700	0	29,000
1895	0	0	0	0	[10] 44,754	0	0	----	0	0	2,000	0	40,000
1900	0	0	0	0	65,131	0	0	217	0	0	5,000	0	60,000
1905	0	0	0	0	107,104	0	0	411	22	0	6,000	0	75,614
1910	0	0	0	0	190,937	0	0	543	12	0	6,700	0	180,000
1911	0	0	0	0	254,627	0	0	885	----	----	7,000	0	200,000
1912	0	0	0	0	241,265	0	0	1,779	----	----	7,000	0	183,000
1913	0	0	0	0	237,630	0	0	4,312	----	----	7,342	0	202,342
1914	0	0	0	0	185,761	0	0	----	----	----	7,000	0	177,372
1915	0	0	----	----	64,670	0	0	2,684	57	0	2,000	0	50,000
1916	3,000	0	----	----	1,299	0	0	0	----	----	0	0	10,000
1917	10,000	0	----	----	683	----	----	0	----	----	0	0	12,124
1918	40,000	0	----	----	424	----	----	32	----	----	0	0	19,189
1919	72,218	0	----	----	23,202	----	----	118	----	----	3,000	0	32,900
1920	22,126	0	----	----	136,194	----	----	484	664	0	5,000	0	129,000
1921	5,028	0	3,000	0	79,642	----	----	268	----	----	4,000	0	85,000
1922	17,313	----	20,000	0	180,932	----	----	2,009	----	----	6,000	0	130,000
1923	0	35,000	----	30,000	151,757	----	----	205	----	----	20,000	----	135,000
1924	0	36,000	----	36,304	144,259	0	575	866	----	----	25,000	----	140,000
1925	0	40,000	----	35,161	180,351	0	2,075	1,187	6,098	0	22,500	----	175,000
1926	0	35,000	----	28,311	223,094	0	4,539	1,200	6,163	0	27,000	----	200,000
1927	0	67,000	----	56,131	183,475	0	10,166	7,380	5,128	0	25,000	----	204,000
1928	0	78,000	----	66,791	261,644	0	23,903	6,656	6,347	0	30,000	----	244,000
1929	0	80,000	----	70,611	258,082	0	16,718	1,104	6,555	0	28,000	----	228,319
1930	0	75,000	----	67,642	306,047	0	16,376	4,761	12,069	5,000	31,000	----	287,000
1931	0	56,000	----	55,738	202,204	5,482	25,809	968	15,055	6,000	27,000	----	188,240
1932	0	70,000	----	57,137	87,761	0	2,521	83	15,119	4,000	15,000	4,000	170,000
1933	2,000	120,000	1,486	104,248	118,203	0	22,589	541	17,607	9,000	16,000	7,400	210,000
1934	10,000	120,000	9,927	101,131	142,199	264	21,510	976	1,060	16,500	17,400	7,800	246,000
1935	33,000	280,000	33,340	239,984	262,370	7,035	61,304	3,118	7,445	9,000	22,400	11,400	307,365
1936	30,000	340,000	29,272	290,760	235,960	6,211	55,280	2,954	8,232	25,436	26,500	13,000	421,000
1937	48,000	358,000	44,998	267,457	372,930	0	71,384	1,481	14,356	48,925	36,100	18,000	490,286
1938	75,000	400,000	72,562	280,622	223,542	0	84,137	1,540	14,567	36,500	35,800	17,100	423,000
1939	100,000	390,000	80,204	307,912	94,417	22,599	91,136	8,448	1,614	24,073	36,900	18,500	448,532
1940	85,000	500,000	83,700	402,663	152,494	0	[11] 70,000	4,851	0	39,567	45,000	22,000	516,000
1941	85,398	663,608	88,032	513,162	14,671	0	[11] 50,000	623	0	38,116	56,600	18,900	540,000
1942	85,680	878,997	81,560	722,370	1,564	2,430	34,020	0	0	32,388	40,282	10,000	676,000
1943	90,137	934,961	96,840	718,578	25,212	4,016	77,597	4,971	0	28,128	33,312	16,414	803,000
1944	114,550	1,082,132	100,532	838,472	4,332	3,842	83,091	3,193	0	33,200	26,548	16,656	824,000
1945	117,677	1,258,332	122,704	909,050	6,801	5,564	79,779	5,362	0	44,211	47,883	25,212	972,000
1946	122,257	1,251,088	123,170	1,025,165	3,452	3,754	74,503	4,166	0	39,378	43,409	25,795	1,060,000
1947	125,120	1,394,202	135,428	1,157,559	35,284	2,834	82,944	0	0	53,292	24,749	20,088	1,102,510
1948	145,676	1,523,937	141,606	1,250,792	35,604	3,118	81,122	321	0	42,848	36,630	28,043	1,250,000
1949	172,475	1,513,128	174,178	1,269,477	29,126	3,609	88,494	0	0	36,558	45,414	51,437	1,453,000
1950	151,547	1,846,459	137,252	1,544,341	[12] 300,414	0	91,806	558	0	55,935	74,640	65,901	1,628,000
1951	155,797	2,047,793	155,806	1,735,047	492,632	0	94,354	511	28,272	40,388	109,240	82,287	1,951,000
1952	150,959	2,408,436	144,408	2,094,087	280,179	23,093	111,156	1,661	7,928	45,042	106,089	128,123	2,095,000
1953	81,801	2,926,398	80,148	2,346,955	174,044	120	119,655	----	0	54,078	96,177	169,835	----
1954	----	----	----	----	147,344	----	----	----	----	----	----	----	----

[1] The 48-percent grade is included with the 50-percent grade, and 61- and 62-percent grades are included with the 60-percent grade.
[2] 1916–18 and 1923–40, estimated; 1919–22, U. S. Geological Survey (*307*); 1941–53, U. S. Bureau of Mines (*271*).
[3] 1921–23, estimated; 1924–35, U. S. Geological Survey (*307*) and U. S. Bureau of Mines (*271*); 1936–52, Turrentine (*247*); 1953, American Potash Institute (*21*). Part of these deliveries are subsequently exported.
[4] U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*276*), and U. S. Bureau of the Census (*280, 284, 288*). Mostly 50-percent grade.
[5] U. S. Bureau of Mines (*271*) and American Potash Institute (*21*).
[6] Most of this went to Canada.
[7] Shipments from the mainland plus imports into the Hawaii and Puerto Rico custom districts.
[8] 1870–1933, estimated; 1934–41, partly estimated; 1942–53 based on Branch surveys.
[9] 1905, 1911, 1919, 1929, 1931, 1935, 1937, 1939, and 1947, U. S. Bureau of the Census (*276*); 1913, U. S. Federal Trade Commission (*300*); 1917 and 1918, Goldenweiser (*86*); other years, estimated. The Census reports gave equivalents of 50-percent muriate. The data given here have been converted to the tonnages of goods actually used.
[10] Year ended June 30.
[11] Estimated.
[12] Revised.

TABLE 73.—*Potassium chloride (muriate of potash): Sales direct to farmers, by regions and States, calendar years 1934–53* [1]

State and region	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	3,391	[2] 2,000	[3] 1,000	[3] 500	[2] 200	[3] 228	280	[2] 700	800	409	124	69	120	40	19	114	33	176	24	49
New Hampshire	[3] 91	[2] 100	[2] 100	[3] 150	[2] 100	[3] 116	281	444	557	124	102	569	275	262	224	231	164	129	65	97
Vermont	38	42	66	216	159	[3] 170	158	241	226	88	231	141	108	65	148	477	377	476	350	287
Massachusetts	685	828	805	1,143	1,053	[3] 1,121	1,205	1,267	1,042	717	746	825	481	701	841	450	597	608	441	760
Rhode Island	[3] 68	[3] 30	[2] 50	[3] 100	[2] 100	[3] 101	[2] 100	126	58	44	60	87	68	100	74	150	61	57	72	54
Connecticut	[3] 343	380	400	500	600	[3] 776	491	676	777	435	566	756	545	439	489	1,242	1,705	1,542	1,217	981
New England	4,619	3,380	2,422	2,009	2,212	2,498	2,575	3,454	3,460	1,817	1,919	2,447	1,597	1,607	1,595	2,664	2,937	2,988	2,169	2,228
New York	[3] 753	[3] 1,200	[3] 1,500	[3] 1,800	[3] 1,500	[3] 1,733	1,575	1,759	1,571	1,902	1,363	1,290	498	316	661	605	648	678	616	873
New Jersey	[3] 1,043	[3] 1,150	[3] 1,300	1,507	[3] 1,200	[3] 1,298	3,583	2,052	2,143	1,405	1,883	1,324	1,522	1,403	1,281	2,083	1,308	995	1,459	1,146
Pennsylvania	[3] 1,037	647	631	600	724	909	735	668	685	280	623	1,185	424	163	114	376	629	893	1,353	754
Delaware	[3] 151	[2] 200	[2] 250	[3] 300	[2] 250	[3] 275	[2] 300	[2] 200	188	47	54	79	50	45	15	27	46	101	104	84
District of Columbia	10	[2] 10	[2] 10	[2] 10	15	[3] 16	15	5	5	0	0	1	1	0	0	2	1	1	2	3
Maryland	272	655	507	373	342	[3] 437	303	383	357	229	226	262	145	39	16	124	245	335	96	147
West Virginia	[3] 282	193	204	250	200	230	250	199	134	89	17	51	8	1	15	26	25	76	13	22
Middle Atlantic	3,558	4,055	4,462	4,840	4,231	4,793	6,761	5,260	5,053	3,952	4,166	4,212	2,640	1,972	2,102	3,243	2,902	3,079	3,643	3,029
Virginia	[3] 345	[2] 400	[2] 500	[3] 1,000	[2] 600	[3] 693	[2] 700	[2] 800	748	522	498	555	398	259	326	505	754	1,274	1,294	1,373
North Carolina	[3] 3,999	6,548	7,971	9,065	8,958	[3] 7,621	8,020	9,031	7,524	8,325	6,658	7,592	6,462	3,160	5,645	10,094	8,801	9,886	10,432	11,503
South Carolina	[3] 1,520	[3] 3,003	[3] 4,000	[3] 6,000	[3] 8,000	[3] 8,974	20,457	18,131	9,186	11,945	9,184	11,437	9,726	4,598	7,206	11,061	11,930	15,109	18,744	18,060
Georgia	[3] 2,013	[3] 2,500	[3] 3,000	[3] 4,000	[3] 5,000	[3] 5,515	[3] 7,000	[3] 8,000	5,000	4,414	4,419	6,510	4,638	2,670	4,049	7,816	9,765	12,546	12,608	10,879
Florida	[3] 1,052	[3] 1,100	[3] 1,200	[3] 1,500	661	[3] 2,203	1,317	5,036	2,332	3,526	3,078	4,472	5,299	4,267	4,206	3,043	3,785	4,666	3,411	1,889
South Atlantic	8,029	13,518	16,671	21,505	23,219	24,916	38,000	42,798	21,790	28,732	23,837	30,666	26,453	14,954	21,432	32,519	35,035	43,601	46,489	43,704
Ohio	1,023	1,060	701	1,860	896	895	690	810	305	479	260	260	385	300	284	691	442	660	1,308	1,924
Indiana	1,282	1,303	2,142	2,317	2,416	1,920	1,967	1,495	1,381	1,025	937	1,238	1,461	1,814	2,142	2,395	2,590	3,009	6,061	14,538
Illinois	291	489	779	744	888	1,059	900	1,010	920	919	660	7,847	11,682	7,531	11,650	13,282	22,766	43,047	68,397	84,981
Michigan	516	644	1,424	1,630	1,214	[3] 1,662	476	719	368	331	97	405	299	342	191	308	553	852	749	858
Wisconsin	[3] 388	660	311	960	500	[3] 793	747	1,808	1,026	998	364	3,899	2,763	970	1,315	1,625	3,391	2,426	2,374	3,704
East North Central	3,503	4,156	5,387	6,911	5,968	6,020	4,684	5,842	4,000	3,752	2,318	13,659	16,560	10,966	15,582	18,302	30,242	49,994	78,880	106,005
Minnesota	[3] 69	57	25	26	30	[3] 31	140	34	16	121	14	4	156	343	105	272	113	224	233	926
Iowa	[3] 28	40	49	49	73	[3] 41	100	90	229	74	145	226	105	780	525	724	1,772	2,258	2,859	5,940
Missouri	[3] 38	332	70	150	235	[3] 113	400	600	403	451	138	781	851	181	1,093	1,869	3,735	5,839	14,527	15,432
North Dakota	0	0	0	0	0	[3] 1	0	0	0	0	0	0	0	0	0	17	26	3	0	4
South Dakota	0	0	0	0	0	[3] 0	0	0	0	0	0	0	0	0	0	0	14	11	3	3
Nebraska	0	0	0	0	0	[3] 3	0	0	0	0	0	0	0	0	0	34	103	107	19	84
Kansas	[3] 4	0	5	0	1	[3] 0	0	0	0	9	3	19	0	0	47	89	97	83	718	478
West North Central	139	429	149	225	339	189	658	724	672	655	300	1,030	1,113	1,307	1,770	3,005	5,910	8,575	18,359	22,807
Kentucky	30	[2] 40	[2] 50	31	[2] 100	[3] 102	241	174	103	122	65	128	61	22	420	749	2,051	3,227	4,314	5,460
Tennessee	[2] 221	[2] 250	[2] 300	[2] 500	[2] 600	[3] 590	[2] 600	[2] 700	600	570	418	3,067	1,777	362	495	1,385	5,591	9,051	11,750	10,380
Alabama	[2] 2,912	[2] 4,000	[2] 5,850	[2] 9,620	[2] 7,788	[2] 7,072	[2] 5,520	[2] 8,240	3,728	1,868	2,120	3,892	2,945	1,275	2,733	5,332	6,874	11,361	12,283	9,933
Mississippi	[3] 615	[2] 2,476	[2] 2,551	[3] 5,554	[3] 5,590	[3] 5,707	[3] 1,577	[3] 3,575	2,101	1,726	1,950	2,743	3,240	1,691	3,210	13,190	20,724	25,868	21,737	21,631
East South Central	3,778	6,766	8,551	15,705	14,087	13,471	10,911	12,089	6,532	4,295	4,553	9,850	8,029	6,350	6,858	20,065	35,240	49,507	50,584	47,394
Arkansas	[3] 165	[3] 120	[3] 250	[3] 452	[3] 619	[3] 1,703	[2] 2,116	[2] 2,044	2,413	2,909	2,702	6,288	6,102	2,255	5,452	7,226	12,112	19,213	15,645	25,981
Louisiana	[3] 312	[3] 354	[3] 347	[3] 675	[3] 1,015	[3] 865	[3] 1,138	[3] 864	1,035	707	1,251	1,961	3,450	523	2,484	3,445	6,995	6,328	8,219	6,008
Oklahoma	[3] 13	[3] 4	[3] 8	[3] 4	[3] 8	[3] 3	[3] 10	2	8	0	0	38	7	111	89	582	2,238	4,013	2,005	
Texas	[3] 108	[3] 122	[3] 175	[3] 147	[3] 207	[3] 105	[3] 166	[3] 224	136	367	227	210	147	270	128	548	1,423	1,242	1,466	1,103
West South Central	638	600	780	1,278	1,879	2,741	3,423	3,142	3,586	3,991	4,180	8,459	9,737	3,055	8,175	11,308	21,112	29,021	29,343	35,102
Montana	0	0	0	0	0	0	0	0	0	0	0	0	3	15	1	2	2	4	8	16
Idaho	[3] 5	[2] 10	[2] 25	[2] 50	[2] 100	52	[2] 50	[2] 100	106	0	147	765	1,150	910	225	124	63	165	25	50
Wyoming	0	0	0	0	[2] 30	10	0	0	0	0	0	1	0	0	0	0	6	0	0	8
Colorado	10	[2] 15	[2] 25	[2] 50	[2] 50	[3] 26	[2] 25	[2] 30	40	0	0	57	147	428	175	223	342	69	167	163
New Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	120	0	112	1	2
Arizona	0	0	0	0	0	0	0	0	0	0	0	12	9	6	62	325	231	0	30	4
Utah	0	0	0	0	0	0	0	0	0	0	6	37	11	16	25	24	35	193	247	74
Nevada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Mountain	15	25	50	100	180	88	75	130	236	0	165	869	1,317	1,431	757	724	448	513	452	328
Washington	[3] 369	[2] 350	[2] 400	[2] 350	[2] 300	[3] 223	[2] 300	[2] 500	700	980	571	812	857	1,181	2,007	1,610	2,367	1,455	1,721	2,735
Oregon	[3] 388	[2] 400	[2] 400	350	[2] 300	[3] 205	[2] 300	[2] 500	903	714	440	405	760	927	1,060	1,257	1,063	1,426	1,349	1,385
California	152	[2] 160	[2] 200	[2] 200	[2] 150	225	[2] 175	[2] 125	320	838	755	726	216	1,087	3, 55	1,545	2,685	1,368	1,214	1,235
Pacific	909	940	1,000	900	750	654	775	1,125	1,923	2,532	1,766	2,003	1,833	3,195	5,402	4,421	6,715	4,249	4,284	5,365
Total	25,229	33,890	39,472	54,073	52,805	55,370	67,892	75,470	50,282	40,726	43,294	73,095	69,294	44,837	64,673	96,851	140,541	191,527	234,212	266,012

[1] 1934–41, partly estimated and partly the result of State surveys; 1934 and 1939, based on fiscal-year surveys (*140, 150*); and 1942–53, based on Branch surveys.

[2] Estimated.

[3] Year ended June 30.

TABLE 74.—*Potassium sulfate and sulfate of potash-magnesia (combined except where noted): Total production, foreign trade, total deliveries of salts of domestic origin, and consumption, decennial years 1880–1910 and annually 1910–54*

Calendar year	Production [1]	Imports		Exports of potassium sulfate [1]	Deliveries [3]	Consumption as fertilizer					
						Continental United States				Hawaii and Puerto Rico [6]	Total [7]
		Potassium sulfate [1]	Sulfate of potash-magnesia [2]			In mixed fertilizers [4]		As separate material [4]			
						Potassium sulfate	Sulfate of potash-magnesia	Potassium sulfate	Sulfate of potash-magnesia		
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*1000 tons*
1880											0.9
1890		7,906	500								1.2
1900		13,801	9,824			9,000	8,000				22
1910		43,082	14,154			30,000	10,000			3,789	55
1911		60,855									
1912		49,119									
1913		44,349				33,120	15,000				
1914		30,224				[8] 39,232	(9)				
1915		12,708								2,556	
1916		1,693									
1917	11,400	230				13,420					
1918	6,897	101	0			16,808					
1919	4,883	1,415				[5] 79,482	(9)				
1920	4,988	17,006	3,249							3,516	20
1921		12,459									
1922		65,534									
1923		71,390									
1924		84,780									
1925		77,226	13,316			[8] 75,000	(9)			5,623	88
1926		78,258	13,395							7,200	89
1927		77,172	12,464							13,410	87
1928		96,333	15,632							11,034	106
1929		89,051	12,061			[3] 77,043	(9)			11,052	98
1930		96,608	13,047							14,295	94
1931		63,863	10,560			[8] 63,554	(9)			10,032	74
1932		31,440	6,485							3,425	56
1933		50,099	15,445							4,906	61
1934		48,242	20,057					4,610	1,300	8,635	75
1935		70,819	25,870			51,620	10,000	5,000	8,000	9,914	82
1936		59,581	13,605					5,500		7,710	83
1937		93,694	22,375			57,889	12,000	6,000	8,000	10,445	94
1938		59,855	13,158		114			6,300		8,807	88
1939		42,463	12,010		10,913	[8] 56,389	(9)	7,100	3,000	5,970	72
1940	48,000	25,013	3,900		41,856			5,870	3,000	5,233	69
1941	82,473				81,842	54,000	2,000	5,880	1,000	6,806	70
1942	119,374			7,633	108,890			6,040		7,327	95
1943	152,553			9,812	139,476	58,000	69,000	4,409	1,540	2,684	136
1944	164,256			9,540	159,839			4,608	2,581	6,961	140
1945	181,516			9,021	169,757	65,000	78,000	4,302	2,019	10,945	160
1946	210,057				198,750			3,014	1,477	8,663	170
1947	212,309	10,031			219,563	72,131	93,072	4,933	5,960	8,600	185
1948	208,542	11,895			228,935	[5] 170,000	(9)	6,524	5,947	7,000	189
1949	193,691	631			212,181	[5] 176,000	(9)	8,315	6,713	9,000	200
1950	223,109	44,125			255,279	[5] 213,000	(9)	12,463	5,551	12,000	273
1951	251,505	52,091	264		276,252	[5] 256,000	(9)	16,153	6,576	10,000	289
1952	238,658	40,202			273,686			18,068	4,760	6,000	
1953	253,602	37,993			281,835			21,930	6,472		
1954		51,832			310,402						

[1] U. S. Bureau of Mines (*271*) and U. S. Geological Survey (*307*). Does not include the tonnages of crude sulfate-carbonate produced annually 1917 to 1920, inclusive.

[2] 1880–1932, from Germany as reported in a private communication from the importer; 1933–51, U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*288*).

[3] Siedenman (*289*) and Turrentine (*247*).

[4] 1913, U. S. Federal Trade Commission (*300*); 1917 and 1918, Goldenweiser (*60*); 1914, 1919–39, and 1947, U. S. Bureau of the Census (*276*); other years, estimated.

[5] 1941 and 1943–53, based on Branch surveys; other years, estimates based on National Fertilizer Association surveys (*146, 150*) and State fertilizer tonnage reports.

[6] 1910–46, imports into Hawaii and Puerto Rico custom districts plus shipments from the mainland; 1947–52, estimated from deliveries of potash reported by the American Potash Institute (*21*).

[7] Estimated from the data in previous columns and other information (*154*).

[8] Includes sulfate of potash-magnesia.

[9] Included with potassium sulfate.

TABLE 75.—*Potassium sulfate: Consumption as separate material, by regions and States, calendar years 1938–53* [1]

State and region	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	10
New Hampshire	0	4	4	9	1	0	0	1	0	0	0	0	12	0	0	0
Massachusetts	58	35	15	25	[2] 61	32	15	24	16	0	0	0	0	0	0	0
Rhode Island	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0
Connecticut	255	188	388	287	321	123	120	390	309	224	379	199	192	324	135	329
New England	313	227	407	322	383	155	137	415	325	225	379	201	204	324	135	339
New York	190	13	27	35	55	4	364	4	33	21	26	16	17	12	79	327
New Jersey	34	50	0	60	0	2	11	19	31	2	22	7	11	19	9	27
Pennsylvania	25	100	0	32	27	31	44	85	52	7	45	18	12	18	18	270
Maryland	169	16	43	15	5	18	15	13	0	0	0	30	22	44	34	63
West Virginia	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	418	182	70	192	88	53	434	121	116	30	93	71	62	93	[3] 143	687
Virginia	0	72	0	500	14	29	43	40	17	22	32	51	95	126	5	385
North Carolina	2,048	2,937	1,865	974	633	777	920	593	313	193	569	1,289	1,952	1,895	10	2,085
South Carolina	[4] 1,000	1,047	800	760	220	486	715	302	179	737	746	1,365	1,773	1,926	1,055	1,773
Georgia	[4] 100	[4] 100	[4] 100	[4] 100	[4] 100	90	124	116	74	19	20	186	437	424	200	898
Florida	[4] 300	[4] 300	364	528	783	667	165	152	77	74	171	356	337	167	2,693	363
South Atlantic	3,448	4,456	3,129	2,862	1,750	2,049	1,977	1,203	660	1,045	1,538	3,247	4,594	4,538	3,963	5,504
Ohio	0	0	0	0	0	1	4	0	0	0	80	0	45	19	82	162
Indiana	24	35	12	18	3	9	3	0	0	2	115	16	67	66	373	113
Illinois	0	0	0	0	0	14	2	1	0	0	0	1	22	66	80	15
Michigan	10	10	8	5	2	7	0	0	0	0	0	0	0	0	0	60
Wisconsin	0	0	0	0	0	18	0	0	2	0	0	6	15	27	55	14
East North Central	34	45	20	23	5	49	9	1	2	2	195	23	149	178	500	364
Iowa	0	0	0	2	3	0	41	0	0	316	0	0	2	0	0	0
Missouri	0	1	0	0	0	6	6	5	0	0	0	0	0	0	0	0
Kansas	0	0	0	0	0	0	1	12	0	0	0	0	0	0	0	0
West North Central	0	1	0	2	3	6	48	17	0	316	0	0	2	0	0	0
Kentucky	25	57	211	147	100	103	31	3	35	0	331	1,016	2,564	5,653	6,895	8,407
Tennessee	30	52	0	0	53	57	29	0	7	20	123	168	705	1,084	1,658	1,918
Alabama	0	0	0	0	0	0	7	1	0	0	9	14	1	1	11	7
Mississippi	10	0	0	0	0	0	0	1	0	0	50	2	0	0	0	0
East South Central	65	109	211	147	153	160	67	5	42	20	504	1,200	3,270	6,738	8,564	10,332
Arkansas	4	3	9	6	4	0	0	1	0	0	0	0	9	13	44	135
Louisiana	15	12	11	29	13	0	8	5	0	98	48	39	50	1	6	6
Texas	44	29	15	48	30	0	0	2	0	0	0	0	7	13	2	14
West South Central	63	44	35	83	47	0	8	8	0	98	48	39	57	27	52	155
Idaho	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Colorado	0	0	0	0	0	0	0	0	0	123	205	124	106	20	7	12
Arizona	0	0	0	0	0	6	0	1	4	9	83	201	263	332	3	255
Utah	0	0	0	0	0	0	2	4	1	10	0	0	1	5	7	7
Nevada	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0
Mountain	0	0	0	0	0	7	2	6	7	142	288	325	370	357	17	274
Washington	0	18	0	0	150	81	134	97	192	106	191	17	73	14	68	56
Oregon	0	0	0	0	0	43	37	29	64	121	88	214	188	77	126	84
California	[4] 2,000	[4] 2,000	[4] 2,000	2,249	3,466	1,806	1,755	2,400	1,606	2,828	3,200	2,978	3,494	3,807	3,761	4,135
Pacific	2,000	2,018	2,000	2,249	3,616	1,930	1,926	2,526	1,862	3,055	3,479	3,209	3,755	3,898	3,955	4,275
Total	6,341	7,082	5,872	5,880	6,045	4,409	4,608	4,302	3,014	4,933	6,524	8,315	12,463	16,153	17,419	21,930

[1] 1938–42, State fertilizer tonnage reports, except as otherwise noted; 1943–53, based on Branch surveys.
[2] Year ended June 30.
[3] Includes 3 tons consumed in Delaware.
[4] Estimated.

TABLE 76.—*Miscellaneous potash materials: Imports and consumption by materials, 1920 and annually 1930–53*

Calendar year	Imports [1]	Consumption						
		As separate materials [2]						In mixed fertilizers [9]
		Cotton-hull ashes [3]	Potassium carbonate [4]	Potash-phosphate ash [5]	Tobacco stems [6]	Wood ashes [7]	Other [8]	
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1920	-------	1,000	-------	-------	70,000	5,000	10,000	196,000
1930	613	2,000	-------	-------	79,000	3,000	3,000	35,000
1931	547	2,000	-------	-------	78,000	3,000	2,000	38,000
1932	469	1,000	-------	-------	71,000	-------	-------	-------
1933	503	500	-------	-------	74,000	2,000	3,000	20,000
1934	394	1,000	-------	-------	81,000	-------	-------	-------
1935	272	1,000	-------	-------	82,000	2,000	6,000	35,000
1936	279	1,500	-------	-------	92,000	-------	-------	-------
1937	255	2,000	-------	-------	90,000	2,500	10,000	7,000
1938	184	1,700	-------	-------	90,000	-------	-------	-------
1939	149	1,300	-------	-------	92,000	2,000	12,000	14,000
1940	125	1,996	-------	-------	95,000	-------	-------	-------
1941	125	1,685	-------	-------	100,000	3,000	19,000	7,000
1942	59	1,749	-------	-------	103,000	-------	-------	-------
1943	30	1,303	-------	-------	105,000	2,934	7,000	20,000
1944	-------	2,344	-------	251	108,000	3,644	7,000	15,000
1945	24	1,385	-------	1,344	115,000	1,116	7,000	16,000
1946	20	1,313	209	643	110,000	4,717	7,000	16,000
1947	-------	1,812	15	40	114,000	3,948	8,000	11,000
1948	63	1,833	16	269	125,000	3,642	9,000	10,000
1949	23	1,323	61	2,536	142,000	3,736	9,000	10,000
1950	2,645	1,503	48	2,655	133,000	5,569	9,000	2,000
1951	-------	1,476	80	1,328	114,000	3,931	9,000	3,000
1952	-------	605	269	-------	121,000	4,963	-------	-------
1953	-------	809	65	-------	-------	4,753	-------	-------

1930–33, U. S. Bureau of Foreign and Domestic Commerce (*270*); 1934–50, U. S. Bureau of Mines (*271*). Consists mostly of wood ashes from Canada.

[2] Includes the Territories.

[3] 1920–39, estimated; 1940–42, State fertilizer tonnage reports (*48*, *132*, *238*); 1943–53, based on Branch surveys. Used principally on tobacco in Connecticut and Massachusetts.

[4] Based on Branch surveys.

[5] Production by Tennessee Valley Authority; potash-phosphate ash is a byproduct of the manufacture of electric-furnace phosphorus and contains about 12 to 15 percent potash and 20 to 25 percent available phosphoric oxide. For fiscal-year data by States see Tennessee Valley Authority Reports (*523*).

[6] Total sales of all large producers plus an estimate for the small ones. In 1947, 90,447 tons were used in making mixed fertilizers, 1,426 tons were sold by the fertilizer industry to farmers, and the remainder is believed to have been used largely by mushroom growers and greenhouse operators.

[7] 1920–41, estimates based on State reports; 1943–53, based on Branch surveys.

[8] Estimated. In 1929 sales of other potash fertilizer materials (*907*) were from the following sources: Nebraska lake brine, 79,872; other brines, 30,180; cement-flue dust, 9,334; blast-furnace dust, 1,126; alunite and silicate rocks, 4,018; molasses and distillery waste and kelp, 9,140; and beet-sugar-refinery waste, 5,994 tons.

[9] Garbage-incinerator ashes, cement-flue dust, vegetable potash, blast-furnace dust, kelp, distillery residue, wool washings, potassium phosphate, potassium metaphosphate, potassium polysulfide, and others. Estimated. Continental United States.

TABLE 77.—*Calcium oxide (CaO): Estimated quantities applied to the soil by class of material, decennial years 1900–20, 1925, and annually 1929–46* [1]

Calendar year	Fertilizer			Liming materials
	Mixed	Separate	Total	
	1,000 tons CaO	*1,000 tons CaO*	*1,000 tons CaO*	*1,000 tons CaO*
1900	332	131	463	417
1910	587	308	895	568
1920	917	153	1,070	1,053
1925	904	203	1,107	1,574
1929	922	360	1,282	1,583
1930	919	345	1,264	1,465
1931	713	256	969	1,096
1932			646	796
1933			743	687
1934			833	972
1935	725	282	1,007	1,354
1936			1,035	2,537
1937	998	317	1,315	2,612
1938			1,172	2,752
1939	825	406	1,231	3,091
1940	873	489	1,362	4,934
1941	925	617	1,542	5,844
1942	1,080	703	1,783	6,374
1943	1,208	801	2,009	6,517
1944	1,406	886	2,292	8,811
1945	1,523	1,008	2,531	9,316
1946	1,640	1,100	2,740	12,210

[1] Mehring (*136a*). Includes the Territories.

TABLE 79.—*Gypsum: Production and imports of crude gypsum and consumption and average price at the mine of agricultural-grade gypsum, decennial years 1850–1930 and annually 1930–52*

Calendar year	Crude gypsum [1]		Agricultural-grade gypsum [2]	
	Production	Imports	Consumption as separate material [3]	Price per ton (f.o.b.) [4]
	Tons	*Tons*	*Tons*	*Dollars*
1850		[5] 100,800	126,000	
1860		[5] 112,000	150,000	
1870		[5] 120,105	160,000	
1880	90,000	[5] 135,059	140,000	
1890	182,995	191,844	120,000	
1900	504,462	235,067	90,000	
1910	2,379,057	415,321	70,000	2.05
1920	3,129,142	282,486	108,000	5.19
1930	3,471,393	902,358	58,000	5.11
1931	2,550,017	713,880	46,000	4.89
1932	1,416,274	374,072	47,000	5.69
1933	1,335,192	359,190	52,000	5.67
1934	1,536,170	360,186	46,233	4.96
1935	1,903,880	450,250	79,000	4.78
1936	2,712,510	676,990	74,000	4.50
1937	3,058,166	897,484	75,000	4.43
1938	2,684,205	789,429	68,000	4.65
1939	3,226,737	1,306,078	92,333	4.86
1940	3,699,015	1,405,210	100,000	5.45
1941	4,788,534	1,347,957	170,507	4.47
1942	4,697,568	394,460	225,876	3.27
1943	3,877,541	231,323	359,545	3.14
1944	3,761,234	342,462	469,873	3.38
1945	3,811,723	508,762	459,268	3.71
1946	5,629,398	1,457,140	520,393	3.93
1947	6,208,216	2,157,040	587,609	3.89
1948	7,254,535	2,859,209	515,603	3.97
1949	6,608,118	2,593,320	437,923	4.20
1950	8,192,625	3,219,299	418,216	4.28
1951	8,065,534	3,436,927	716,842	3.99
1952	8,415,360	3,067,995	804,974	3.55

FOOTNOTES FOR TABLE 79:

[1] 1850–1920, except as otherwise noted, U. S. Geological Survey (*307*); 1930–52, U. S. Bureau of Mines (*271*).
[2] Also called land plaster.
[3] Continental United States. 1934, 1939, and 1941–52, from table 80; other years, estimated.
[4] Computed from the tonnage and value of sales of agricultural-grade gypsum as given in sources shown in footnote 1.
[5] U. S. Bureau of Statistics (*275*) and U. S. Treasury Department (*324*). Year ended June 30.

TABLE 78.—*Gypsum: Active mines and production of crude material, by States, decennial years 1910–50* [1]

State	1910		1920		1930		1940		1950	
	Active mines	Production	Active mines	Production	Active mines	Production	Active mines	Production	Active mines	Production
	Number	*Tons*	*Number*	*Tons*	*Number*	*Tons*	*Number*	*Tons*	*Number*	*Tons*
California	7	45,901	(2)	(2)	(2)	(2)	6	259,321	11	962,373
Colorado	4	45,820	(2)	(2)	(2)	(2)	3	24,641	(2)	(2)
Iowa	6	322,713	6	571,895	7	481,047	8	487,379	5	981,647
Kansas	7	135,088	3	130,044	(2)	(2)	(2)	(2)	[3] 6	333,228
Michigan	8	357,174	6	382,212	5	519,225	5	746,982	4	1,474,210
Nevada	(2)	(2)	4	143,929	5	165,279	4	250,632	4	604,604
New York	13	467,339	8	780,295	10	912,070	9	798,229	6	1,280,100
Ohio	[4] 4	292,987	3	277,899	3	255,337	(2)	(2)	(2)	(2)
Oklahoma	10	162,788	4	135,279	(2)	(2)	3	176,166	(2)	(2)
Utah	4	46,279	(2)	(2)	3	26,694	4	45,421	(2)	(2)
Texas	3	188,559	5	220,157	5	359,315	7	328,261	5	1,076,251
Other States	[5] 16	314,490	[6] 22	487,432	[7] 18	752,426	[8] 10	581,983	[9] 16	1,480,212
Total	82	2,379,057	61	3,129,142	56	3,471,393	59	3,699,015	57	8,192,625

[1] 1910–20, U. S. Geological Survey (*307*); 1930–50, U. S. Bureau of Mines (*271*).
[2] Included with "Other States."
[3] Includes 2 mines in Arizona and 1 each in Arkansas and Louisiana.
[4] Includes 2 mines in Virginia.
[5] In Arizona, New Mexico, Montana, Nevada, South Dakota, Oregon, Wyoming, and Alaska.
[6] 4 mines in Wyoming produced 57,732 tons. Alaska, Arizona, California, Colorado, Montana, New Mexico, Oregon, South Dakota, Utah, and Virginia had either 1 or 2 mines each.
[7] In Arizona, California, Colorado, Kansas, Montana, Oklahoma, South Dakota, Wyoming, and Virginia.
[8] 2 in Kansas, 2 in Montana, 1 in South Dakota, 1 in Wyoming, 2 in Ohio, and 2 in Virginia.
[9] 4 in Colorado, 2 in Montana, 1 in Wyoming, 1 in Washington, 2 in Ohio, 2 in Oklahoma, 3 in Utah, and 1 in Virginia.

TABLE 80.—*Gypsum: Consumption [1] as separate material, by regions and States, calendar years 1934, 1939, and 1941–53*

State and region	1934	1939	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Connecticut	300	400	700	500	700	800	700	803	526	305	323	247	852	531	940
Other New England States [2]					48		24	8				75	59	109	235
New England	300	400	700	500	748	800	730	811	526	305	323	322	941	750	1,175
New York and New Jersey					18			70	40	513	1,571	75	197	321	704
Pennsylvania	83	187	694	93	1,124	1,378	1,000	1,015	44	83	2,225	3,311	1,127	649	715
Maryland, Delaware, District of Columbia, and West Virginia	100	125	502	199	253	219	87	97	924	143	131	299	570	339	482
Middle Atlantic	183	312	1,256	292	1,395	1,597	1,087	1,182	1,014	769	3,927	3,685	1,894	1,309	1,901
Virginia	3,226	14,117	9,000	5,103	5,243	9,238	16,049	9,579	11,671	10,349	10,233	15,086	11,132	12,144	16,924
North Carolina	9,110	10,000	10,000	10,000	19,180	30,368	39,839	46,557	39,439	54,544	41,773	31,306	34,000	27,412	25,532
South Carolina	1,000	1,500	2,524	1,200	1,578	1,533	2,833	4,603	4,930	5,258	4,404	3,342	2,369	2,446	2,386
Georgia	800	1,201	2,000	1,000	1,943	3,287	6,333	17,532	15,000	21,123	17,265	17,737	17,133	12,907	18,255
Florida	400	500	500	300	400	500	1,074	872	3,391	1,138	1,230	573	1,456	1,243	1,216
South Atlantic	14,536	27,318	24,024	15,603	28,344	44,926	65,928	79,143	74,431	92,412	74,915	68,044	66,096	56,217	64,303
Minnesota			1,038	2,116	1,155	1,502	1,682	1,650	2,600	1,689	1,690	1,029	1,167	2,200	802
Other North Central States [3]	100	199	14	1	137				161	295	269	23	294	415	2,032
North Central	100	199	1,052	2,117	1,292	1,502	1,682	1,650	2,761	1,984	1,959	1,052	1,461	2,675	2,834
Alabama	200	300	300	400	318	287	671	818	186	315	274	475	1,252	425	484
Texas								1,000	800	700	500	396	381		373
Other South Central States [4]										278		2		321	851
South Central	200	300	300	400	318	287	671	1,818	986	1,293	774	973	1,633	746	1,708
Montana	100	121	194	198	235	405	1,000	800	620	1,093	498	467	594	422	603
Idaho	1,500	781	1,432	1,144	1,609	4,411	4,695	5,718	4,320	3,646	3,160	2,747	2,157	5,201	5,859
Colorado									300	1,098	563	56	290	209	578
Arizona	200	300	500	500	901	957	2,308	4,619	2,298	6,029	5,059	5,051	25,000	9,007	9,081
Utah									177	142	700	171	140	140	338
Other Mountain States [5]	200	224	245	206	357	700	1,000	1,000	1,439	1,708	245	202	302	4,045	8,351
Mountain	2,000	1,426	2,371	2,048	3,102	6,173	9,503	12,137	9,154	13,416	10,234	8,604	28,483	19,114	24,870
Washington	6,000	5,000	6,500	7,000	8,366	12,181	8,658	5,841	3,800	7,111	3,170	2,477	2,592	2,949	17,171
Oregon	15,000	14,500	12,000	12,000	15,000	7,173	3,901	3,725	4,669	3,634	4,272	4,399	2,718	12,521	11,980
California	7,914	42,873	122,304	185,856	300,980	395,174	367,108	414,286	490,268	394,979	338,340	327,970	611,024	708,593	597,520
Pacific	28,914	62,373	140,804	204,856	324,346	414,528	379,667	423,852	498,737	405,724	345,791	334,846	616,334	724,103	625,781
Total	46,233	92,333	170,507	225,876	359,545	468,873	459,269	520,393	587,609	515,603	437,923	418,216	716,842	804,974	722,572

[1] Pennsylvania (*107*), North Carolina (*182*), Florida (*61*), California (*58, 59, 40*), and Minnesota (*70*)—quantities given to the last digit; other States, based on Branch surveys.
[2] Maine, New Hampshire, Vermont, Massachusetts, and Rhode Island.
[3] Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa, Missouri, North Dakota, Nebraska, and Kansas.
[4] Tennessee, Mississippi, Louisiana, and Oklahoma.
[5] Wyoming, New Mexico, and Nevada.

TABLE 81.—*Magnesium oxide (MgO): Estimated quantities applied to the soil, by class of material, decennial years 1910–30 and annually 1935–52* [1]

Calendar year	Fertilizer			Liming materials [5]	Manure [6]	Miscellaneous [7]	Total
	Dolomite [2]	Other magnesic materials [3]	Total [4]				
	Tons MgO	*Tons* MgO	*Tons* MgO	*Tons* MgO	*1,000 tons* MgO	*1,000 tons* MgO	*1,000 tons* MgO
1910	-------	-------	78,525	58,196	983	70	1,190
1920	195	-------	65,163	107,073	1,069	87	1,323
1930	14,025	-------	61,128	180,386	960	56	1,264
1935	51,984	1,577	85,719	215,733	960	60	1,321
1936	55,832	2,130	91,821	465,705	962	52	1,571
1937	60,732	4,073	114,402	500,809	947	52	1,614
1938	55,079	7,038	103,196	542,349	933	55	1,634
1939	62,858	5,560	104,668	633,351	950	58	1,746
1940	64,578	6,340	108,642	1,070,469	992	60	2,231
1941	74,480	7,077	123,077	1,072,382	1,003	65	2,263
1942	73,696	5,811	122,565	1,549,915	1,053	69	2,785
1943	85,881	8,824	150,101	1,515,611	1,114	55	2,835
1944	96,522	13,613	176,422	2,156,537	1,153	49	3,535
1945	98,739	14,346	190,097	1,837,770	1,062	45	3,155
1946	108,687	15,000	208,050	2,495,311	1,062	50	3,723
1947	128,773	20,000	272,382	2,407,814	908	45	3,723
1948	120,136	22,000	275,000	2,117,390	949	43	3,384
1949	130,787	23,000	277,504	2,228,843	933	40	3,479
1950	121,117	28,615	295,367	2,263,066	943	40	3,541
1951	123,660	29,402	307,434	2,186,211	985	40	3,519
1952	-------	31,579	-------	2,168,166	-------	-------	-------

FOOTNOTES FOR TABLE 81:

[1] 1910–46, Mehring (*154, 158*); 1947–52, except as otherwise noted, computed from the tonnages in other tables and average magnesium oxide content of each material (*138*). Includes the Territories.

[2] Includes only dolomite used in the manufacture of mixed fertilizers.

[3] Sea-water magnesia, Epsomite, calcined brucite, epsom salt, kieserite, magnesite, selectively calcined dolomite, and similar materials, whether used as separate materials or in the manufacture of mixtures. 1946–49, estimated; 1950–52, Lowe (*116*).

[4] Includes the magnesium oxide content of other fertilizer materials.

[5] Computed on the basis of the tonnage of agricultural limestone (*176*) and the average magnesium oxide content for each State (*138*).

[6] Computed on the basis of number of animals on farms January 1 (*298*).

[7] Seaweed, peat, composts, and wood ashes from home fires. Before 1947 ground phosphate rock and gypsum were included in this group, but subsequently these materials (about 6,000 tons magnesium oxide annually) are included with fertilizers.

TABLE 82.—*Sulfur: Total production and foreign trade and consumption in fertilizers, every fifth year 1900–30 and annually 1930–53*

Calendar year	Production [1]			Imports [2]	Exports [3]	Sulfur content of pyrites		Consumption in fertilizers [6]
	Frasch process	From other mines	Recovered from gas [2]			Domestic production [4]	Imported [5]	
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*1,000 tons*
1900	0	3,525	-------	187,837	-------	87,084	171,201	213
1905	[7] 246,400	(?)	-------	92,916	12,904	107,677	275,222	-------
1910	[7] 276,767	(?)	[8] 111,724	82,095	34,431	102,829	431,988	374
1915	[7] 583,052	(?)	230,600	27,605	41,789	167,739	518,588	-------
1920	[7] 1,405,879	(?)	315,362	49	534,744	138,880	171,772	514
1925	[7] 1,578,373	(?)	222,539	112	708,178	78,101	148,516	571
1930	[7] 2,866,059	(?)	301,625	32	682,445	138,949	195,540	650
1931	[7] 2,334,402	(?)	218,983	0	470,095	135,992	187,910	526
1932	[7] 997,203	(?)	152,380	0	403,086	74,304	135,471	368
1933	1,573,529	1,261	166,535	5,346	595,031	120,684	190,493	479
1934	1,587,111	4,939	147,797	6,540	579,294	187,957	195,848	471
1935	1,821,780	6,712	153,216	1,974	462,895	223,383	212,930	507
1936	2,252,757	5,541	194,781	816	634,936	242,710	224,796	504
1937	3,053,099	7,907	211,689	703	771,490	259,744	279,785	650
1938	2,075,960	4,657	174,423	2,915	662,832	245,189	177,992	541
1939	2,338,560	3,336	216,072	15,653	731,163	246,117	248,381	553
1940	3,052,806	7,072	213,451	31,186	858,158	293,368	214,252	636
1941	3,505,993	9,970	232,502	32,087	852,069	302,806	184,593	705
1942	3,870,682	5,280	270,995	28,708	655,512	343,700	145,482	861
1943	2,843,440	2,881	337,138	18,657	764,369	377,441	126,704	969
1944	3,004,337	1,836	340,430	36	758,260	372,691	87,889	1,131
1945	4,203,570	1,809	325,204	37	1,055,781	331,816	92,528	1,188
1946	4,322,799	7,105	293,818	39	1,395,318	378,055	91,502	1,272
1947	4,974,180	4,819	308,739	17	1,511,481	439,322	63,256	1,328
1948	5,453,515	1,904	288,204	42	1,451,008	434,701	54,843	1,388
1949	5,314,416	6,039	293,428	30	1,636,377	423,871	58,970	1,344
1950	5,815,246	3,726	448,401	28	1,655,944	439,923	100,542	1,375
1951	5,911,630	4,418	542,557	2,661	1,469,235	484,757	106,668	1,528
1952	5,928,322	9,560	639,195	5,446	1,498,972	468,272	142,567	1,625
1953	5,773,983	170,037	755,808	1,377	1,423,532	425,040	91,734	1,697

See footnotes on p. 86.

TABLE 83.—*Sulfur trioxide (SO_3): Estimated quantities applied to the soil, by class of material, decennial years 1850–1920 and annually 1925–53* [1]

Calendar year	Primary-nutrient fertilizers [2]	Secondary-nutrient fertilizers [3]	Liming materials	Manure	Miscellaneous [4]	Total [5]
	1,000 tons SO_3	*1,000 tons* SO_3	*1,000 tons* SO_3	*1,000 tons* SO_3	*1,000 tons* SO_3	*1,000 tons* SO_3
1850	2	52	2	282	51	389
1860	6	65	3	348	66	488
1870	35	69	3	410	82	599
1880	100	61	3	512	92	768
1890	211	52	8	713	78	1,062
1900	494	39	11	751	73	[6] 1,368
1910	903	31	13	810	67	1,824
1920	1,230	53	16	917	88	2,304
1925	1,401	25	16	848	118	2,408
1926	1,494	34	16	824	126	2,494
1927	1,382	31	17	830	139	2,399
1928	1,626	31	17	852	152	2,680
1929	1,667	35	18	844	162	2,726
1930	1,591	32	18	852	160	2,653
1931	1,285	24	13	855	155	2,336
1932	890	23	11	877	140	1,947
1933	1,009	26	9	907	145	2,156
1934	1,144	33	19	912	148	2,256
1935	1,223	43	27	800	159	2,252
1936	1,219	39	26	812	164	2,260
1937	1,580	42	68	733	185	2,608
1938	1,296	56	39	720	199	2,310
1939	1,312	69	41	747	208	2,377
1940	1,521	68	63	796	225	2,673
1941	1,686	74	75	787	243	2,865
1942	2,057	92	88	842	264	3,343
1943	2,309	110	76	920	292	[6] 3,707
1944	2,518	306	99	970	306	4,199
1945	2,675	292	90	868	335	4,260
1946	2,882	293	111	852	357	4,495
1947	3,021	294	115	804	377	4,611
1948	3,135	332	80	773	380	4,700
1949	3,079	276	47	830	375	4,607
1950	3,186	248	41	868	360	4,703
1951	3,493	323	43	905	350	5,114
1952	3,696	361	----------	----------	----------	----------
1953	3,804	432	----------	----------	----------	----------

[1] Mehring and Bennett (*141*), except 1949–51, which were obtained in the manner described by them. The original gave part of the data to 1 decimal place. Includes the Territories.
[2] Those supplying nitrogen, phosphoric oxide, or potash.
[3] Those supplying sulfur, calcium, magnesium, or the trace elements, except liming materials.
[4] Insecticides, fungicides, wood ashes from home fires, seaweed, greensand marl, composts, offal from farm-slaughtered animals, and similar materials.
[5] Sum of the data in the 5 preceding columns.
[6] Revised.

TABLE 84.—*Sulfuric acid (H_2SO_4): Consumption for all fertilizer uses, 1930–54* [1]

Calendar year	Used in manufacture of [2]—			Applied directly to the soil [3]	Total consumption [4]
	Superphosphate [3]	Ammonium sulfate [4]			
		Byproduct	Synthetic		
	1,000 tons H_2SO_4	*1,000 tons* H_2SO_4	*1,000 tons* H_2SO_4	*1,000 tons* H_2SO_4	*1,000 tons* H_2SO_4
1930	1,540	500	5	----------	4,767
1931	905	368	9	----------	3,671
1932	485	213	11	----------	2,742
1933	746	252	24	----------	3,187
1934	1,026	291	30	----------	3,834
1935	1,076	343	43	----------	4,182
1936	1,237	445	37	----------	4,747
1937	1,387	479	44	----------	5,341
1938	1,182	324	41	----------	4,143
1939	1,225	431	41	----------	4,995
1940	1,406	532	46	----------	5,713
1941	1,555	553	14	----------	6,967
1942	1,835	589	36	----------	7,780
1943	2,500	565	39	----------	8,650
1944	2,640	607	62	----------	9,190
1945	2,850	567	66	----------	9,175
1946	3,020	478	116	----------	8,651
1947	3,410	601	145	----------	9,030
1948	3,480	617	196	5,238	10,235
1949	3,880	582	628	9,441	10,700
1950	3,950	617	844	4,825	12,100
1951	3,900	667	462	2,018	14,520
1952	4,150	596	603	6,909	14,645
1953	4,050	702	428	3,340	15,300
1954	4,060	611	689	3,039	15,100

[1] Continental United States.
[2] In terms of 100-percent sulfuric acid.
[3] 1930–52, computed from tonnages reported in "Chemical Metallurgical Engineering" (*8*) and "Chemical Engineering" (*11*); 1953–54, estimated.
[4] Tonnages in table 14 multiplied by 0.74222.
[5] 40–93 percent acid; for years ended June 30; Branch surveys.
[6] Includes nonfertilizer uses. 1930–52, computed from tonnages reported in "Chemical Metallurgical Engineering" (*8*) and "Chemical Engineering" (*11*); 1953–54, estimated. Basis 50° Be'.

FOOTNOTES FOR TABLE 82:

[1] U. S. Geological Survey (*207*) and U. S. Bureau of Mines (*271*).
[2] Total sulfur equivalent of the sulfur and sulfuric acid recovered from zinc, copper, and lead smelting, and various gases.
[3] 1900–46, U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*276*), and U. S. Bureau of the Census (*284*); 1947–53, U. S. Bureau of Mines (*271*).
[4] 1930–48, computed from the tons of pyrites and average sulfur contents given by the U. S. Bureau of Mines (*271*); 1949–53, U. S. Bureau of Mines (*271*). For the years before 1930 the sulfur content is estimated at 38 percent.
[5] Before 1911 the bulk of the imports was from Spain, but since then from Canada. In converting pyrites to sulfur, it was assumed that Canadian pyrites average 43 percent; Spanish, 48 percent; and other kinds, 44 percent sulfur.
[6] Computed from the sulfur trioxide of fertilizers consumed (columns 2 and 3 of table 83). Tremearne (*242*) estimated that in 1948 total consumption of sulfur in agriculture, including the sulfur content of fungicides, was 1,677,000 tons, and in 1950, 1,897,000 tons. Includes the Territories.
[7] Relatively small quantities of impure sulfur or sulfur earth mined in open pits in California, Colorado, Utah, and other States are included with the Frasch-process production.
[8] 1911, which is the first year for which this information is available.

TABLE 85.—*Copper sulfate* ($CuSO_4 \cdot 5H_2O$): *Total production, shipments, exports, and consumption by uses, 1910, 1920, 1930, and annually 1939–52*

Calendar year	Production [1]	Shipments [2]	Exports [3]	Consumption [4]	
				As fertilizer [5]	As fungicide [6]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*
1910	14,864			100	
1920	14,665		1,892	200	
1930	[7] 40,000		2,530	1,000	
1939	43,266		14,620	7,000	18,000
1940	67,016		27,740	9,100	18,000
1941	85,489		34,511	11,500	22,000
1942	105,200		35,082	14,300	25,500
1943	89,100	79,900	30,367	15,000	27,000
1944	102,600	97,900	28,922	19,747	32,103
1945	125,560	114,800	34,907	25,000	
1946	127,800	124,700	41,345	32,141	
1947	89,100	86,600	34,021	24,700	
1948	96,700	93,100	42,135	27,300	
1949	79,000	84,400	31,717	20,000	
1950	87,300	91,300	30,139	18,658	
1951	108,944	104,260	43,129	17,338	26,600
1952	94,536	92,472	43,421	17,577	8,500

[1] 1910–20, U. S. Geological Survey (*307*); 1930–52, U. S. Bureau of Mines (*271*). The 1910 and 1920 data include only production by mining companies.
[2] U. S. Bureau of Mines (*271*).
[3] U. S. Geological Survey (*307*) and U. S. Bureau of Mines (*271*). Imports in 1948, 1950, and 1951 were 63, 940, and 107 tons. In other years shown they were less than 10 tons.
[4] Continental United States.
[5] 1910–30, Mehring (*134*); 1940, 1942, 1944, 1946–48, Plummer quoted by Siems (*250*); 1950–52, computed from data by Lowe (*116*); other years, estimated. See table 87 for usage by States.
[6] 1939, estimated; 1940–44, unpublished data from the U. S. War Production Board; 1951–52, difference between that used as fertilizer and the total used in agriculture as reported by U. S. Bureau of Mines (*271*).
[7] Production for 1931 estimated by Helena M. Meyer, U. S. Bureau of Mines, on the basis of a survey made in 1932.

TABLE 86.—*Manganese sulfate* ($MnSO_4 \cdot 4H_2O$): *Total production and consumption by uses, selected years 1925–41 and annually 1943–52*

Calendar year	Production [1]	Consumption as fertilizer		
		As separate material [2]	In mixed fertilizers [3]	Total [4]
	Tons	*Tons*	*Tons*	*Tons*
1925				100
1930				900
1933	1,310			1,000
1935	4,779		1,000	2,000
1939	8,903		5,000	6,000
1941	12,440		8,000	8,500
1943	15,000	356	10,000	10,400
1944	17,885	523	11,000	11,500
1945	20,000	1,011	12,000	13,000
1946	21,000	1,500	12,500	14,000
1947	24,209	4,800	12,826	17,600
1948	24,000	1,800	15,000	16,800
1949	27,000	6,000	13,000	19,000
1950	29,000	7,700	12,000	19,700
1951	30,000	8,300	12,300	20,600
1952	21,000	8,800	6,600	15,400

[1] 1933–39, U. S. Bureau of the Census (*279*); 1941 and 1947, based on Branch surveys; 1944, unpublished data from the U. S. War Production Board; other years, estimated. The 1935–39 data were reported as anhydrous $MnSO_4$, but these data have been converted to the 65-percent grade ($MnSO_4 \cdot 4H_2O$), the common fertilizer grade. "Techmangam" is included.
[2] Based on Branch surveys. Rounded off because a part was reported as miscellaneous minor-element materials. Includes the Territories.
[3] 1947, U. S. Bureau of the Census (*276*); other years, estimated. Continental United States.
[4] 1925–41, estimated; 1950–52, computed from data by Lowe (*116*); other years, rounded total of numbers in the 2 preceding columns.

TABLE 87.—*Trace nutrients: Consumption, by States, calendar years 1950–52* [1]

State [2]	Boron (B)			Copper oxide (CuO)			Manganese oxide (MnO)			Zinc oxide (ZnO)		
	1950	1951	1952	1950	1951	1952	1950	1951	1952	1950	1951	1952
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	8.75	8.75	8.75									
New Hampshire	2.6	2.85	3.0									
Vermont	1.6	1.8	2.15									
Massachusetts	11.45	36.15	18.1	0.05	0.075	0.1	4.35	4.35	4.0			
Rhode Island	23.75	24.85	25.8									
Connecticut	7.0	7.25	8.7	75.0	75.0	75.0						
New York	60.75	56.0	57.0	250.6	250.0	266.8	34.5	34.5	30.0			
New Jersey	109.35	109.35	109.35	.35	.35	.35	61.45	64.45	62.5	37.5	37.5	37.5
Delaware	1.15	1.35	1.7									
Maryland	27.0	30.5	27.75									
Virginia	88.0	93.5	99.0				36.4	42.0	45.0			
North Carolina	83.9	74.65	82.2	2.5	2.5	2.5	12.5	12.5	10.0	1.35	1.35	1.35
South Carolina	.15	.15	.15	95.0	95.6	95.6	150.0	159.0	150.0	50.0	56.6	56.6
Georgia	170.0	220.0	270.0							350.0	400.0	500.0
Florida	134.0	152.0	165.0	5,400.0	4,950.0	5,000.0	5,000.0	5,225.0	3,750.0	1,270.0	1,350.0	1,390.0
Indiana	11.5	12.5	12.5	75.0	100.0	100.0	300.0	300.0	250.0			
Wisconsin	37.5	50.0	94.05	7.5	7.5	15.0	12.5	12.5	15.0	4.5	5.0	10.0
Alabama	35.45	30.0	40.0	9.45	13.3	15.0	13.55	17.5	12.5	17.6	21.95	35.0
Montana	.85	.90	1.35									
Idaho	60.0	70.0	80.0									
Arizona							77.5	77.5	75.0	45.0	49.8	54.75
Utah	.5	.5	.5	.5	.5	.5	1.0	1.05	1.0	1.5	1.6	1.75
Washington	12.2	14.15	16.35	5.0	5.0	5.0	7.5	7.5	7.5	9.0	10.0	10.0
Oregon	[3] 93.2	[3] 107.67	[3] 124.22							2.5	2.5	2.5
California	23.6	20.6	20.0	25.0	25.0	25.0	254.0	318.0	300.0	220.0	300.0	400.0
Total	1,003.6	1,133.87	1,268.32	5,945.3	5,524.8	5,600.8	5,965.2	6,275.9	4,712.5	2,008.9	2,246.3	2,499.4

[1] Lowe (*116*). 50 tons of cobalt sulfate were used in South Carolina in 1951. 259.5 tons of iron oxide (FeO) were also used in 1951 as follows: *South Carolina*, 0.05; *Florida*, 130; and *Arizona*, 129 tons.

[2] No data are available for States not listed.

[3] Corrected value (*12*).

TABLE 88.—*Zinc sulfate (as sold): Sales by producers for use in agriculture, and consumption by uses, 1937–52*

Calendar year	Sales [1]	Consumption as fertilizer		
		As separate material [2]	In mixed fertilizers [2]	Total [3]
	Tons	*Tons*	*Tons*	*Tons*
1937	2,235			1,200
1938	1,664			1,600
1939	2,168			1,200
1940	2,366			1,300
1941	3,038			1,600
1942	4,123			2,500
1943	3,339	139	1,700	1,800
1944	4,974	141	3,160	3,200
1945	6,645	406	4,200	4,600
1946	10,816	498	4,300	4,800
1947	7,827	658	4,000	4,700
1948	5,210	509	4,000	4,500
1949	4,429	1,165	4,000	5,200
1950	5,841	1,128	4,200	[4] 5,319
1951	5,588	1,538	4,400	[4] 5,948
1952	5,111			[4] 6,618

[1] U. S. Bureau of Mines (*271*). Total sales for agricultural use, including material for fungicidal use. Total weight of zinc sulfate reported shipped by domestic producers.

[2] Based on Branch surveys. Includes the Territories.

[3] *Estimated unless otherwise noted. Continental United States.*

[4] Lowe (*116*); converted to zinc sulfate (as sold). The average zinc oxide content of samples analyzed by fertilizer control chemists in recent years is 37.77 percent.

TABLE 89.—*Mixed fertilizers: Number of mixing plants and annual rated capacities, by regions and States and Territories, 1948* [1] *and 1952* [2]

State and region or Territory	Plants		Capacity	
	1948	1952	1948	1952
	Number	*Number*	*1,000 tons*	*1,000 tons*
Maine	14	16	203	286.5
Vermont and Rhode Island	2	3	5	26.5
Massachusetts	13	13	181	226.7
Connecticut	8	9	140	142.4
New England	37	41	529	676.1
New York	26	31	470	493.7
New Jersey	31	35	384	518.7
Pennsylvania	36	34	568	508.9
Delaware	9	7	100	87.0
Maryland	30	36	1,445	1,380.4
West Virginia and District of Columbia	2	3	10	17.5
Middle Atlantic	143	146	2,947	3,006.2
Virginia	37	35	1,703	1,914.5
North Carolina	76	74	1,760	2,647.0
South Carolina	91	98	1,413	1,702.4
Georgia	150	151	2,283	2,557.8
Florida	70	71	1,506	2,015.4
South Atlantic	424	429	8,665	10,838.1
Ohio	45	48	1,285	1,672.4
Indiana	21	26	570	867.6
Illinois	16	27	888	1,415.9
Michigan	9	12	245	350.7
Wisconsin	11	12	300	329.5
East North Central	102	125	3,288	4,636.1
Minnesota	10	12	275	331.2
Iowa	11	15	350	376.6
Missouri	10	10	227	480.4
North and South Dakota	1	6	5	92.5
Nebraska	4	9	80	147.0
Kansas	4	12	87	160.4
West North Central	40	73	1,024	1,588.1
Kentucky	8	10	180	468.1
Tennessee	15	20	629	1,117.0
Alabama	48	51	841	1,180.6
Mississippi	26	31	318	567.5
East South Central	97	118	1,968	3,333.2
Arkansas	13	16	333	416.5
Louisiana	17	19	484	607.5
Oklahoma	3	6	100	210.2
Texas	32	36	338	715.2
West South Central	65	77	1,255	1,949.4
Montana and Idaho	7	11	50	80.1
Colorado	6	12	12	31.3
New Mexico	3	7	6	8.6
Arizona	5	8	38	106.0
Utah	4	7	16	48.6
Mountain	25	45	122	274.6
Washington	16	20	103	140.6
Oregon	10	17	42	78.5
California	85	132	686	1,076.8
Pacific	111	169	831	1,295.9
Continental United States	1,044	1,223	20,629	27,597.7
Territories	10	12	500	526.0
Total	1,054	1,235	21,129	28,123.7

[1] Estimated.
[2] Scholl (*214*).

TABLE 90.—*Mixed fertilizers: Production, by type, census years 1899–1947* [1]

Calendar year	$N-P_2O_5-K_2O$	$N-P_2O_5$	$P_2O_5-K_2O$	Other	Total [2]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*
1899	1,436,682	----------	----------	185,792	1,622,474
1904	1,329,149	----------	----------	1,056,052	2,385,201
1909	2,717,797	----------	----------	805,962	3,523,759
1914	4,093,265	----------	----------	1,519,156	5,612,421
1919	3,485,225	----------	----------	1,271,215	4,756,440
1921	2,985,265	339,222	----------	----------	3,324,487
1923	4,032,506	189,894	----------	----------	4,222,400
1925	4,925,948	131,703	247,541	----------	5,305,192
1927	5,088,179	74,812	233,499	----------	5,396,490
1929	5,991,780	----------	211,293	----------	6,203,073
1931	4,544,650	----------	149,301	----------	4,693,951
1933	3,273,744	----------	86,868	----------	3,349,560
1935	4,201,581	61,041	142,076	----------	4,404,698
1937	5,680,619	53,086	225,589	----------	5,959,294
1939	5,088,468	39,712	233,355	----------	5,361,535
1947	10,722,934	405,811	453,047	[3] 60,260	11,642,052

[1] As reported by U. S. Bureau of the Census (*276*).
[2] Sum of the mixed goods separately reported. 1899–1919, $N-P_2O_5-K_2O$ and ammoniated fertilizers. In some years types of mixtures for which no separate category was provided were included with "All other fertilizers." It is known that considerable tonnages of $N-P_2O_5$ mixtures were produced in 1929, 1931, and 1933, and much smaller, but nevertheless substantial, quantities of $N-K_2O$ mixtures in all years since 1923.
[3] $N-K_2O$ mixtures.

TABLE 91.—*Mixed fertilizers: Production, by regions and States, calendar years 1909–47* [1]

State and region	Complete and ammoniated mixtures			N–P_2O_5–K_2O mixtures					P_2O_5–K_2O mixtures, 1947
	1909	1914	1919	1925	1929	1935	1939	1947	
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	22,537	50,554	52,980	16,789	[2] 76,140	48,947	[3]	136,325	
Massachusetts	[3]	[3]	[3]	73,514	111,967	82,508	70,057	122,486	2,958
Connecticut	29,368	49,533	55,445	56,454	46,811	[4] 47,776	[4] 41,618	[5] 82,393	[5] 3,674
New England				146,757	234,918			341,204	6,632
New York	80,188	99,519	[3]	62,362	93,547	71,891	86,419	216,428	2,139
New Jersey	254,316	353,310	256,403	215,381	210,642	184,282	211,814	349,872	4,540
Pennsylvania	201,760	171,461	152,529	114,774	121,045	133,560	149,724	242,992	8,232
Maryland	318,542	516,958	486,104	600,358	517,869	392,548	383,198	641,591	21,309
Other Middle Atlantic States [6]	[3]	21,888	12,175	19,121	25,733	20,442	20,133	46,865	4,525
Middle Atlantic		1,163,136		1,011,996	968,836	802,703	851,288	1,497,748	40,795
Virginia	229,785	375,256	381,802	486,936	611,339	448,373	565,197	940,093	55,728
North Carolina	175,471	458,295	463,161	612,404	766,752	482,389	606,107	878,401	6,329
South Carolina	278,394	491,076	545,642	455,878	427,762	315,022	346,796	619,035	15,266
Georgia	595,105	1,155,559	1,004,717	805,662	863,270	548,336	653,547	1,162,515	8,132
Florida	98,322	200,663	175,746	295,564	380,788	304,840	368,094	714,944	9,877
South Atlantic	1,377,577	2,680,849	2,551,068	2,656,444	3,049,911	2,098,960	2,539,741	4,314,988	95,332
Ohio	143,710	218,691	206,084	183,815	315,972	288,321	348,932	965,658	37,005
Indiana	16,090	41,318	87,065	70,356	98,706	89,803	112,335	383,598	73,136
Illinois	87,413	251,654	159,057	116,017	189,962	105,502	148,024	772,406	82,985
Michigan	[3]	[3]	[3]	[3]	[3]	45,190	62,461	151,081	14,001
Wisconsin	[3]	[3]	[3]	[3]	[3]	[3]	[3]	88,015	32,987
East North Central								2,360,758	240,114
Minnesota	[3]	[3]	[3]	[3]	[3]	[3]	[3]	24,046	
Missouri	8,875	10,375	[3]	[3]	[3]	1,187	[7]	[7] 98,853	
West North Central								122,899	13,631
Kentucky	[3]	14,926	3,794	[3]	[3]	38,620	38,557	138,983	5,035
Tennessee	140,047	164,109	75,458	90,036	129,677	79,175	108,494	424,312	29,345
Alabama	209,177	403,135	208,872	283,888	352,017	193,085	278,136	563,002	10,845
Mississippi	72,193	95,359	51,398	82,642	120,205	78,681	105,860	192,414	
East South Central		677,529	340,022			389,561	531,047	1,318,711	45,225
Arkansas	[3]	[3]	[3]	37,206	49,485	[3]	41,820	113,458	[8]
Louisiana	47,488	132,287	94,369	94,237	199,010	79,872	130,106	293,584	9,206
Texas	[3]	32,807	12,848	24,765	75,335	26,162	46,617	138,784	[9] 782
West South Central				156,208	323,836		218,543	545,826	9,988
Mountain	[3]	[3]	[3]	[3]	12,033	[3]	[3]	2,597	0
California	44,572	44,456	45,433	49,013	65,822	53,532	63,164	178,766	
Washington and Oregon	[3]	[3]	[3]	6,143	19,856	10,223	19,590	39,437	
Pacific				55,156	85,678	63,755	82,754	218,203	1,330
Other States	409,906	259,322	247,868	72,633	[10] 110,029	[11] 30,334	[12] 81,668	0	
Total	3,523,750	5,612,421	4,756,440	4,925,948	5,991,780	4,201,581	5,088,468	10,722,934	453,047

[1] U. S. Bureau of the Census (*276*).
[2] Includes production in New Hampshire and Vermont.
[3] Included with "Other States."
[4] Small productions in Rhode Island and Vermont included with "Other States."
[5] Includes production in Vermont.
[6] 1909–29, Delaware only. In 1935 and 1939 a small production in West Virginia is included with "Other States."
[7] Includes production in Iowa.
[8] Included with Texas.
[9] Includes production in Arkansas.
[10] Iowa, Michigan, Minnesota, and Wisconsin, 62,312 tons; Kansas, Kentucky, Missouri, Nebraska, and Oklahoma, 47,717 tons.
[11] Arkansas, Kansas, Minnesota, Montana, Nebraska, Nevada, Rhode Island, Vermont, West Virginia, and Wisconsin.
[12] Arizona, Colorado, Iowa, Kansas, Maine, Minnesota, Missouri, Montana, Nebraska, North Dakota, Oklahoma, Rhode Island, Vermont, West Virginia, and Wisconsin.

TABLE 92.—*Mixed fertilizers: Materials estimated to have been used in their manufacture, continental United States, selected calendar years 1900–61* [1]

Material	1900	1917	1929	1935	1937	1939	1941	1943	1945	1947	1949	1950	1951
	1,000 tons	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*
Chemical nitrogenous:													
Ammonia and solutions	0	0	52	54	151	132	207	201	310	656	630	670	817
Ammonium nitrate	0	0	0	0	0	0	0	1	85	112	74	80	65
Ammonium sulfate	4	125	461	304	381	340	354	583	710	637	700	750	980
Calcium cyanamide	0	37	77	32	44	35	33	14	26	29	17	15	15
Sodium nitrate	17	286	239	163	123	88	69	68	37	56	48	45	30
Other [2]	0	0	56	48	46	89	19	30	53	49	60	46	48
Natural organics:													
Animal manures				2	5	8	10	20	58	11	10	12	10
Castor pomace	5	20	45	41	45	60	77	61	72	49	71	72	56
Cocoa byproducts		9	13	18	20	25	25	20	15	20	20	25	22
Cottonseed meal	140	306	85	49	79	76	13	39	19	30	30	30	20
Fish scrap	20	46	64	84	98	39	41	4	8	9	5	6	10
Guano		68	16	20	8	7	14	2	3	2	2	3	1
Sewage sludge			24	22	32	39	94	73	67	43	68	63	86
Tankage, animal	253	304	79	42	40	54	40	10	10	14	9	8	8
Tankage, garbage		124	79	55	56	31	14	15	14	14	12	10	9
Tankage, process		8	126	100	125	93	88	103	87	98	93	101	95
Tung meal	0	0	0		1	2	3	4	8	8	19	24	7
Other [3]	30	37	82	56	44	24	22	20	10	15	7	7	9
Phosphatic:													
Ammonium phosphates		20	20	29	33	27	27	16	40	81	60	77	79
Bonemeal	84	81	46	26	33	1	15	1	5	8	10	10	10
Phosphate rock			30	27	50	31	35	31	16	42	21	17	19
Superphosphate, normal	1,004	2,627	2,922	1,903	2,617	2,126	2,487	4,206	4,575	5,913	6,035	6,390	6,926
Superphosphate, concentrated	0		47	39	65	60	80	66	60	147	2a	358	378
Wet-base goods	100	518	69	80	120	150	130	36	37	58	54	64	77
Other [4]					3	5	5	5	15	11	6	20	22
Potassic:													
Kainit	55	1	81	21	21	19							
Manure salts	30	2	390	142	72	24	107	171	122	112	150	25	15
Potassium chloride	60	12	228	307	490	448	540	803	972	1,103	1,453	1,828	1,951
Potassium nitrate [5]	1	14	4	7	40	40	9	4	2	1	6	20	18
Potassium sulfate	9	13	67	52	58	56	56	127	143	165	176	243	266
Sulfate of potash-magnesia	8		10	10	12								
Tobacco stems	10	37	40	50	60	70	90	92	95	90	95	103	91
Other [6]	2	82	37	35	7	14	7	20	16	11	10	2	3
Miscellaneous materials:													
Dolomite			34	274	397	321	350	396	503	656	666	617	630
Land plaster					30	50	70	80	85	120	125	135	150
Other secondary-nutrient materials [7]								15	20	91	95	100	100
Manganese sulfate			1	1	2	5	8	10	12	13	13	12	12
Other trace-nutrient materials			1	1	2	3	9	20	30	30	35	38	40
Peanut-hull meal					7	30	50	50	41	60	60	66	65
Peat		55	40	25	30	33	33	36	39	50	60	58	67
Other conditioners [8]										90	95	98	100
Filler	140	1,093	708	286	512	688	604	665	605	938	675	674	580
Total	2,077	5,823	[9] 6,273	4,405	5,959	5,362	5,855	8,118	9,025	11,642	12,015	12,719	13,857

[1] Revisions of previously published data for 1900, 1917, and 1929 (*149*) and 1935–51 (*998*). The tonnages are on the basis of materials as used. The "Census of Manufactures" gives superphosphate data in terms of 18- and 45-percent phosphoric oxide and muriate of potash in terms of 50-percent potash. In this table tonnages from census are converted to the basis of the average nutrient content of the materials actually used in that year.

[2] Includes calcium nitrate, Leunasalpeter, Cal-Nitro, A-N-L, urea, Calurea, and similar materials.

[3] Includes dried blood, hoof and horn meal, various seed meals, king crab meal, lobster scrap, wool waste, and similar materials.

[4] Includes spent boneblack, high-grade residue, precipitated phosphate, and phosphoric acid.

[5] Includes nitrate of soda-potash.

[6] Includes cement-kiln dust, cotton-hull ashes, wood ashes, and potassium carbonate.

[7] Includes magnesium oxide, calcined kieserite, epsom salt, magnesium carbonate, sulfur, and similar materials.

[8] Includes furfural waste, rice hulls, and similar materials.

[9] Includes quantities of materials used in the manufacture of an estimated 70,000 tons of $N-P_2O_5$ and $N-K_2O$ mixtures not reported in table 90.

TABLE 93.—*Mixed fertilizers: Percentage of the total of each primary nutrient derived from various materials, selected years 1900–51* [1]

Calendar year	Nitrogen				Available phosphoric oxide			Potash		
	Ammonia and its salts [2]	Nitrates [2]	Natural organics	Other materials [3]	Normal superphosphate	Concentrated phosphates [4]	All other	High-grade salts [5]	Kainit and manure salts	All other [6]
	Percent N	*Percent* N	*Percent* N	*Percent* N	*Percent* P_2O_5	*Percent* P_2O_5	*Percent* P_2O_5	*Percent* K_2O	*Percent* K_2O	*Percent* K_2O
1900	2.1	6.9	91.0	0	79.8	0	20.2	71.3	19.6	9.1
1905	3.8	11.2	85.0	0	73.2	0	26.8	50.6	41.1	8.3
1909	16.1	16.2	67.7	0	80.1	0	19.9	47.9	44.6	7.5
1913	24.0	19.6	54.3	2.1	78.7	0	21.3	51.2	39.5	9.3
1917	18.7	30.2	46.5	4.6	80.5	1.8	17.7	38.9	1.4	59.7
1919	23.8	19.7	53.6	2.9	81.9	1.7	16.4	54.6	7.8	37.6
1925	29.5	23.1	37.0	10.4	87.7	5.2	7.1	52.6	40.1	7.3
1929	48.2	19.0	22.2	10.6	87.4	5.1	7.5	54.3	38.5	7.2
1931	61.2	11.6	18.8	8.4	85.6	7.3	6.1	61.7	30.1	8.2
1935	53.0	18.3	21.9	6.8	86.6	7.5	5.9	77.5	6.1	16.4
1939	58.2	15.6	15.3	10.9	85.4	10.0	4.6	90.8	3.3	5.9
1941	59.0	11.5	15.8	13.7	87.5	9.1	3.4	91.5	6.0	2.5
1942	65.9	11.7	14.1	8.3	87.8	9.0	3.2	91.5	6.1	2.4
1943	67.4	14.9	12.2	5.5	94.1	3.1	2.8	88.1	7.6	4.3
1944	72.0	13.1	8.3	6.6	93.6	4.0	2.4	88.1	9.4	2.5
1945	72.1	13.4	7.6	6.9	92.8	5.8	1.4	90.4	4.6	5.0
1946	72.8	15.1	5.4	6.7	93.0	5.7	1.3	90.3	4.5	5.2
1947	71.6	17.4	5.1	5.9	92.1	6.9	1.0	92.3	6.4	1.3
1948	73.8	16.0	4.5	5.7	91.5	7.5	1.0	89.7	6.0	4.3
1949	75.5	16.0	5.1	3.4	90.3	9.0	.7	93.1	5.6	1.8
1950	76.4	16.2	5.1	2.3	85.9	12.5	1.6	94.5	0.4	5.1
1951	78.1	15.1	4.8	2.0	84.6	13.5	1.9	96.6	<.1	3.3

[1] Continental United States. 1900–31, Mehring and Peterson (*149*); 1935–51, U. S. Department of Agriculture (*298*).
[2] Half of the nitrogen in ammonium nitrate is included under ammonia and half under nitrates.
[3] Includes calcium cyanamide, urea, Calurea, and similar materials.
[4] Concentrated superphosphate and ammonium phosphates.
[5] Chloride and sulfate.
[6] Includes sulfate of potash-magnesia.

TABLE 94.—*Mixed fertilizers: Foreign trade, 1925–54* [1]

Calendar year	Imports [2]	Exports
	Tons	*Tons*
1925	----------	33,514
1926	----------	29,612
1927	----------	16,486
1928	4,617	29,584
1929	5,674	37,529
1930	13,559	40,834
1931	12,257	[3] 6,747
1932	3,862	1,801
1933	2,234	2,912
1934	2,387	3,278
1935	2,832	6,093
1936	5,915	5,197
1937	10,090	4,201
1938	45,995	5,363
1939	40,678	6,945
1940	32,044	8,145
1941	32,892	23,441
1942	36,304	6,801
1943	34,669	3,606
1944	33,080	[4] 35,666
1945	37,841	[5] 35,353
1946	47,638	16,396
1947	43,814	19,157
1948	51,046	35,372
1949	43,841	16,756
1950	29,126	32,762
1951	29,681	81,395
1952	43,131	57,054
1953	39,541	42,303
1954	35,893	40,678

FOOTNOTES FOR TABLE 94:
[1] 1925–49, 1952–54, U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*280, 284, 287, 288*); 1950–51, U. S. Office of Foreign Agricultural Relations (*309*).
[2] In 1928–37 most of the imports consisted of the Nitrophoska type of concentrated mixtures. In 1938, 8,270 tons were Nitrophoska and 37,725 tons were ordinary mixed goods. In 1939 and 1940, 3,120 tons and 30 tons, respectively, were concentrated mixed fertilizer. Since 1940 most of the mixed fertilizer imports consisted of N–P_2O_5–K_2O mixtures from Canada; a large portion of which came into Maine.
[3] Includes 254 tons concentrated mixed fertilizers and 22 tons N–K_2O mixtures.
[4] Includes 8,260 tons shipped under the Lend-Lease Program.
[5] Includes 17,115 tons shipped under the Lend-Lease Program.

TABLE 95.—*Mixed fertilizers: Consumption and primary-nutrient content, calendar years decennially 1880–1920 and annually 1925–53 and years ended June 30, 1934, 1939, and 1943–54* [1]

Year	Consumption of mixed fertilizers	Consumption of primary-nutrients			Primary-nutrient content			
		Nitrogen	Available phosphoric oxide	Potash	Nitrogen	Available phosphoric oxide	Potash	Total
Calendar year:	*Tons*	*Tons*	*Tons*	*Tons*	*Percent*	*Percent*	*Percent*	*Percent*
1880	350,000	8,400	31,850	7,000	2.40	9.10	2.00	13.50
1890	800,000	18,400	74,400	16,800	2.30	9.30	2.10	13.70
1900	1,770,600	35,412	166,436	44,265	2.00	9.40	2.50	13.90
1910	3,437,200	72,181	319,660	116,865	2.10	9.30	3.40	14.80
1920	4,062,200	93,431	373,722	97,493	2.30	9.20	2.40	13.90
1925	4,809,200	120,230	452,065	197,177	2.50	9.40	4.10	16.00
1926	4,981,440	129,517	478,218	219,183	2.60	9.60	4.40	16.60
1927	4,696,430	126,804	446,161	211,339	2.70	9.50	4.50	16.70
1928	5,437,049	152,237	527,394	250,104	2.80	9.70	4.60	17.10
1929	5,507,913	165,237	545,283	258,372	3.00	9.90	4.70	17.60
1930	5,615,907	174,093	550,359	280,795	3.10	9.80	5.00	17.90
1931	4,404,856	140,955	427,271	224,648	3.20	9.70	5.10	18.00
1932	3,199,582	105,586	307,160	166,378	3.30	9.60	5.20	18.10
1933	3,663,643	124,564	344,382	194,173	3.40	9.40	5.30	18.10
1934	4,095,818	145,402	375,996	219,945	3.55	9.18	5.37	18.10
1935 [2]	4,505,242	156,434	417,756	246,978	3.47	9.27	5.48	18.22
1936	5,046,872	182,192	468,854	287,167	3.61	9.29	5.69	18.59
1937 [2]	5,059,294	215,347	546,560	341,746	3.61	9.17	5.73	18.51
1938	5,325,622	198,113	501,141	324,330	3.72	9 41	6.09	19.22
1939	5,473,932	204,725	516,192	338,289	3.74	9.43	6.18	19.35
1940	5,513,425	209,304	530,971	358,020	3.80	9.63	6.49	19.92
1941	5,344,053	223,378	565,869	391,336	3.82	9.68	6.70	20.20
1942	6,837,000	252,508	664,891	476,883	3.69	9.72	6.98	20.39
1943	8,315,756	271,931	858,318	589,304	3.27	10.32	7.09	20.68
1944	8,712,880	337,450	899,118	605,872	3.87	10.32	6.95	21.14
1945	9,253,984	366,749	950,850	694,334	3.96	10.27	7.50	21.73
1946	11,158,525	433,535	1,165,714	800,304	3.88	10.45	7.17	21.50
1947	11,908,046	476,382	1,257,443	836,487	4.00	10.56	7.02	21.58
1948	12,265,697	493,257	1,322,584	980,057	4.02	10.78	7.34	22.14
1949	12,271,345	489,055	1,322,817	982,880	3.99	10.78	8.01	22.78
1950	13,033,492	529,801	1,433,047	1,110,525	4.06	11.00	8.52	23.58
1951	14,127,330	592,166	1,566,413	1,282,624	4.19	11.09	9.08	24.36
1952	15,240,305	668,077	1,704,342	1,447,294	4.38	11.18	9.50	25.06
1953	15,404,886	729,772	1,747,935	1,534,576	4.74	11.35	9.96	26.05
Year ended June 30:								
1934	4,141,000	152,070	383,960	220,868	3.67	9.27	5.33	18.27
1939 [2]	5,475,900	204,800	511,450	339,500	3.74	9.34	6.20	19.28
1943	7,704,247	236,618	836,200	591,103	3.07	10.85	7.67	21.59
1944	8,639,682	334,735	884,855	588,512	3.87	10.24	6.81	20.92
1945 [2]	9,065,900	354,782	933,279	675,669	3.91	10.29	7.45	21.65
1946	10,201,244	400,842	1,056,137	752,013	3.93	10.35	7.37	21.65
1947	11,742,656	467,903	1,230,488	819,280	3.98	10.48	6.98	21.44
1948	12,210,489	493,281	1,307,691	872,899	4.04	10.71	7.15	21.90
1949	12,839,506	512,474	1,384,681	999,043	3.99	10.78	7.78	22.55
1950	12,297,596	495,360	1,344,295	1,018,174	4.03	10.93	8.28	23.24
1951	13,978,382	583,959	1,541,363	1,254,927	4.18	11.03	8.98	24.19
1952	15,086,349	648,223	1,680,705	1,420,395	4.30	11.14	9.42	24.86
1953	15,722,224	728,095	1,782,286	1,554,001	4.63	11.34	9.88	25.85
1954	15,541,076	778,099	1,801,423	1,596,032	5.01	11.59	10.27	26.87

[1] Includes Hawaii, Puerto Rico, Government distribution, and for recent years Alaska (see table 96). Data for calendar years 1880–1940 and 1942 are estimated from State tonnage reports or other available information. Data for other years are based on Branch surveys. The data through 1943 did not originally include Government distribution and the surveys were not complete for all States. The original data have been reexamined and revised where necessary. Where original surveys for a State were incomplete they were adjusted to an estimated 100-percent basis. In the year ended June 30, 1939, 90.67 percent of the total tonnage was reported in detail by grades; in the year ended June 30, 1934, 77.97 percent; and in the calendar year 1925, only 43.1 percent.

[2] Revised.

TABLE 96.—*Mixed fertilizers: Consumption, by regions and States and Territories and by 6-month periods 1943–54* [1]

State and region or Territory	1943		1944		1945		1946		1947		1948	
	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	212,783	9,349	201,490	5,635	220,259	12,109	233,151	13,216	212,537	28,205	212,819	22,159
New Hampshire	17,125	504	14,631	591	14,407	977	14,867	1,813	13,510	2,421	9,905	2,107
Vermont	15,578	810	11,399	1,060	15,519	2,061	16,621	3,331	17,930	4,960	14,968	4,333
Massachusetts	60,883	3,501	62,522	3,780	59,834	5,496	61,249	6,668	57,983	7,494	58,252	8,733
Rhode Island	12,701	503	11,980	712	13,941	481	13,598	920	12,634	894	14,294	1,117
Connecticut	52,821	2,589	52,037	2,095	51,239	2,657	53,492	3,527	52,096	3,003	51,427	4,367
New England	371,891	17,256	354,039	13,882	375,199	23,781	392,978	29,475	366,690	46,977	361,665	42,816
New York	271,527	36,425	280,228	47,233	326,323	40,958	337,034	67,556	318,349	58,770	344,484	67,568
New Jersey	171,992	27,405	197,838	31,536	195,032	30,482	192,270	46,921	173,859	49,215	179,190	51,331
Pennsylvania	229,817	95,740	256,617	110,005	280,387	114,392	310,606	147,458	312,215	149,453	328,276	146,505
Delaware	25,633	14,850	26,069	17,017	28,510	15,124	32,969	18,672	32,956	17,686	33,693	16,147
District of Columbia	963	320	1,017	308	[2] 787	212	901	513	1,126	423	887	221
Maryland	128,520	66,964	116,088	69,279	121,955	68,763	135,556	84,384	148,098	86,102	135,593	78,005
West Virginia	35,340	7,770	33,300	7,303	32,691	7,489	39,049	11,163	42,300	11,154	43,385	10,184
Middle Atlantic	863,792	249,474	920,217	282,681	[2] 985,685	286,420	1,048,385	376,667	1,026,903	372,803	1,065,508	369,961
Virginia	298,297	108,849	297,710	119,725	331,603	112,248	361,358	142,788	373,041	155,111	390,307	142,750
North Carolina	981,695	175,816	959,680	147,444	1,031,719	150,644	1,147,224	280,910	1,270,582	225,773	1,143,014	217,077
South Carolina	545,280	85,315	515,728	61,432	484,275	54,781	541,519	130,865	573,780	135,626	544,729	111,461
Georgia	729,307	77,309	727,872	54,657	675,107	57,493	765,380	145,297	911,186	125,034	864,606	104,001
Florida	360,881	303,440	423,898	299,235	417,325	319,541	495,419	380,818	429,533	274,279	379,655	234,264
South Atlantic	2,904,460	750,729	2,924,888	682,493	2,940,029	694,707	3,310,900	1,080,658	3,558,131	915,823	3,322,311	809,553
Ohio	287,683	188,409	324,606	229,312	366,833	228,077	413,879	286,318	447,312	294,620	506,000	336,025
Indiana	246,020	106,396	277,267	143,648	309,100	157,657	376,589	192,373	394,653	227,808	474,682	257,675
Illinois	76,910	20,428	95,255	33,246	112,357	48,028	147,204	77,766	181,994	108,075	232,658	135,157
Michigan	146,706	52,386	185,789	71,812	201,330	90,380	215,035	104,702	225,722	126,796	222,770	144,563
Wisconsin	106,009	5,038	147,613	24,839	162,167	44,497	182,353	66,450	220,408	91,305	283,375	98,646
East North Central	863,328	372,657	1,030,530	502,857	1,151,787	569,539	1,335,060	727,609	1,470,089	848,604	1,719,485	972,066
Minnesota	27,521	4,107	38,711	6,810	50,010	11,076	59,489	25,174	70,942	39,713	97,246	45,234
Iowa	28,148	3,801	41,284	10,660	64,114	19,753	81,197	46,961	99,436	59,079	136,430	66,708
Missouri	26,397	20,173	37,711	29,271	53,117	32,588	80,093	73,128	125,587	101,305	140,212	123,865
North Dakota	790	183	1,421	1,195	2,682	2,693	3,430	7,017	6,551	11,022	9,998	5,389
South Dakota	119	36	60	91	214	40	775	2,125	1,548	3,586	2,653	1,738
Nebraska	677	90	71	183	342	95	1,093	400	1,125	524	3,152	3,733
Kansas	1,281	3,069	1,978	4,314	3,178	6,177	5,299	17,176	12,415	28,316	15,133	32,338
West North Central	84,942	31,609	121,236	52,524	173,657	72,452	231,382	171,981	317,604	243,545	404,822	279,005
Kentucky	91,950	17,891	124,418	22,585	157,306	22,625	185,073	58,089	228,256	67,844	258,429	75,614
Tennessee	147,067	24,459	148,778	28,448	159,259	25,641	198,255	52,605	222,675	92,203	251,691	94,785
Alabama	462,898	35,556	471,379	21,129	472,250	16,751	508,038	81,687	539,586	156,806	613,456	130,732
Mississippi	225,018	35,606	193,553	11,640	204,455	7,928	234,650	40,304	231,264	63,601	267,067	81,210
East South Central	928,933	113,512	938,128	83,802	992,970	72,945	1,126,016	232,685	1,221,781	380,454	1,390,643	382,341
Arkansas	99,572	6,466	83,165	2,649	68,249	4,847	92,566	12,661	109,069	24,121	100,745	28,702
Louisiana	108,246	18,918	105,434	13,842	88,401	16,680	116,031	25,138	119,489	31,792	126,101	29,385
Oklahoma	8,044	1,083	11,515	1,200	10,206	2,446	14,930	5,182	17,319	8,218	25,939	11,536
Texas	120,725	28,821	126,492	12,166	147,595	21,023	160,845	48,005	181,959	37,396	183,471	34,668
West South Central	336,590	55,288	326,606	29,857	314,451	44,996	384,372	90,986	427,836	101,527	436,256	104,291
Montana	438	120	847	261	950	204	1,187	612	1,489	793	2,760	406
Idaho	1,743	360	3,437	692	4,899	768	5,184	2,885	5,529	2,200	7,762	2,424
Wyoming	103	0	78	6	71	15	248	16	306	1	554	68
Colorado	2,074	201	1,500	930	2,646	2,269	3,020	1,661	4,757	2,695	7,957	3,234
New Mexico	386	123	334	310	960	513	787	1,176	1,332	275	716	578
Arizona	2,422	3,554	3,204	2,956	3,297	5,604	5,084	5,616	5,199	7,334	6,117	7,392
Utah	310	180	368	188	397	251	1,504	1,388	2,105	1,266	2,764	289
Nevada	55	10	120	39	388	26	55	54	222	12	204	57
Mountain	7,531	4,448	9,978	5,392	13,615	9,650	17,069	13,406	20,939	14,576	28,843	14,428
Washington	25,023	5,901	16,956	7,650	22,608	11,211	32,165	13,690	28,361	9,497	22,083	7,650
Oregon	8,408	2,277	7,745	3,539	13,393	6,900	20,437	8,952	23,421	5,950	20,106	5,358
California	80,927	71,270	95,763	87,933	134,605	116,085	155,592	130,239	139,139	103,163	120,585	97,513
Pacific	114,358	79,448	120,464	99,122	170,666	134,196	208,194	152,881	190,921	118,610	162,774	110,521
Continental United States	6,473,825	1,674,821	6,746,086	1,752,610	[2] 7,118,059	1,908,686	8,054,356	2,876,348	8,600,894	3,042,919	8,892,307	3,084,982
Hawaii	19,278	22,454	19,919	17,203	20,999	23,739	20,482	18,870	19,519	18,383	15,915	18,565
Puerto Rico	45,993	79,385	97,017	80,045	76,984	105,317	88,244	102,005	127,020	100,211	140,754	113,174
Alaska	----------	----------	----------	----------	----------	----------	220	----------	----------	----------	----------	----------
Territories	65,271	101,839	116,936	97,248	97,983	129,256	108,946	118,875	146,539	118,594	156,669	131,739
Total	6,539,096	1,776,660	6,863,022	1,849,858	[2] 7,216,042	2,037,942	8,163,302	2,995,223	8,747,433	3,161,513	9,048,976	3,216,721

See footnotes at end of table, p. 95.

TABLE 96.—*Mixed fertilizers: Consumption, by regions and States and Territories and by 6-month periods 1948–54* [1]—Continued

State and region or Territory	1949		1950		1951		1952		1953		1954
	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	195,677	28,097	[2] 164,795	15,827	137,106	22,370	179,088	25,685	175,762	17,733	147,047
New Hampshire	13,560	3,234	12,884	2,843	14,162	2,233	12,915	597	13,404	1,444	10,381
Vermont	23,758	6,340	23,871	5,945	26,473	11,757	26,892	11,197	24,251	3,130	24,434
Massachusetts	61,992	7,076	61,286	10,394	63,060	9,795	64,453	9,646	58,446	10,120	58,998
Rhode Island	14,938	1,237	13,104	1,547	12,658	1,480	12,865	1,365	11,989	1,339	11,616
Connecticut	50,556	5,925	50,327	5,538	49,705	5,601	52,947	4,990	55,024	5,595	58,608
New England	360,481	52,409	[2] 326,267	42,094	303,164	53,236	349,160	54,690	338,876	40,631	311,282
New York	363,629	72,924	347,890	83,911	358,680	97,983	388,629	118,413	399,107	94,453	418,689
New Jersey	197,101	37,249	176,949	47,125	185,483	47,925	193,086	56,751	192,747	50,635	215,403
Pennsylvania	349,391	152,910	368,298	147,375	371,423	166,811	491,005	184,575	443,588	156,080	452,097
Delaware	38,099	14,693	39,681	15,029	49,162	15,020	59,089	16,057	69,633	13,409	75,364
District of Columbia	1,125	215	1,120	244	1,230	367	1,364	586	1,381	565	1,342
Maryland	143,944	75,647	146,715	74,357	169,809	77,281	193,024	76,461	204,650	73,604	218,421
West Virginia	46,366	11,242	48,360	11,361	51,892	15,607	57,528	14,742	55,353	13,191	54,660
Middle Atlantic	1,139,655	364,880	1,129,013	379,402	1,187,679	420,994	1,290,725	447,585	1,366,459	401,937	1,435,976
Virginia	417,613	138,780	445,299	176,359	500,423	179,560	560,167	173,786	564,647	147,453	537,648
North Carolina	1,205,703	210,582	1,182,928	304,991	1,226,733	251,590	1,319,604	223,771	1,303,751	218,046	1,272,600
South Carolina	608,702	82,989	530,037	131,627	547,547	115,391	602,910	115,655	595,039	100,945	571,078
Georgia	889,452	98,906	805,805	146,469	889,590	162,942	890,265	207,896	915,672	158,151	944,555
Florida	445,826	296,600	488,050	345,740	571,532	384,392	589,175	408,390	643,564	415,334	656,198
South Atlantic	3,567,295	827,947	3,452,179	1,105,186	3,735,825	1,093,875	3,962,119	1,129,498	4,022,673	1,039,929	3,982,077
Ohio	539,889	300,486	542,770	316,851	568,796	315,931	667,510	372,711	711,113	308,914	709,228
Indiana	469,861	187,146	516,293	250,810	569,338	244,941	689,233	257,268	768,179	235,604	782,426
Illinois	235,386	82,944	239,175	124,705	313,168	185,113	407,094	172,369	472,323	109,980	481,540
Michigan	260,004	125,554	283,233	156,058	301,421	185,627	350,933	198,953	384,491	156,891	388,340
Wisconsin	258,638	45,210	289,929	74,920	291,628	73,623	277,235	58,872	318,717	70,210	331,931
East North Central	1,763,778	741,340	1,871,400	923,354	2,044,351	1,005,235	2,392,005	1,060,173	2,654,823	941,599	2,670,535
Minnesota	103,210	19,526	124,342	31,913	120,470	37,768	133,434	30,170	176,677	48,285	203,259
Iowa	171,024	18,427	189,692	42,401	199,957	66,744	211,102	50,314	316,232	86,053	334,811
Missouri	156,176	92,650	170,582	119,915	267,068	121,120	306,710	156,220	312,642	141,683	327,052
North Dakota	7,802	2,411	9,940	1,564	8,662	5,150	16,325	4,260	14,704	6,419	16,639
South Dakota	2,947	402	2,045	730	3,470	1,210	4,423	693	7,128	2,299	11,100
Nebraska	9,355	1,712	7,633	3,283	14,630	6,338	25,502	11,284	38,145	12,790	53,156
Kansas	15,551	26,481	20,411	30,092	34,472	37,126	47,460	69,818	40,933	53,723	45,847
West North Central	462,865	161,660	504,555	235,898	648,729	275,456	744,956	322,768	906,461	351,252	991,864
Kentucky	285,403	49,911	296,891	65,226	349,365	77,672	405,280	81,710	376,870	53,979	398,794
Tennessee	258,800	59,033	281,520	64,787	324,282	77,957	365,370	85,230	332,379	70,133	324,999
Alabama	714,864	92,593	667,146	137,423	691,646	132,902	737,373	112,825	733,899	91,584	745,949
Mississippi	288,881	21,800	255,034	33,188	297,147	25,684	345,249	18,396	317,325	19,889	334,519
East South Central	1,547,948	223,443	1,500,591	300,624	1,662,440	314,215	1,853,272	298,161	1,760,473	235,585	1,804,261
Arkansas	132,955	6,389	144,430	23,156	190,610	14,897	173,171	21,590	175,374	18,966	174,531
Louisiana	121,795	22,053	130,368	25,651	148,809	29,315	150,768	31,717	143,414	28,581	144,781
Oklahoma	36,148	13,489	45,797	15,323	51,195	12,514	52,504	19,846	40,594	24,323	40,191
Texas	197,474	42,656	210,158	65,013	217,141	64,967	228,514	62,326	220,873	60,663	220,724
West South Central	488,372	84,587	530,753	129,143	607,755	121,693	604,957	135,479	585,255	132,533	580,527
Montana	2,476	137	2,012	431	1,834	709	2,570	720	3,199	1,103	3,131
Idaho	9,064	293	7,212	413	7,015	192	11,425	493	13,942	72	6,714
Wyoming	928	20	1,412	128	625	49	623	331	2,684	55	2,324
Colorado	14,070	2,581	15,033	3,392	15,582	876	19,707	3,215	15,653	3,224	11,466
New Mexico	588	27	662	201	1,694	466	1,054	782	1,767	172	1,975
Arizona	9,836	4,882	12,529	5,568	22,094	5,957	18,386	6,376	18,126	5,519	15,943
Utah	1,742	364	1,882	212	2,118	333	2,246	640	2,673	270	3,351
Nevada	128	57	272	[2] 78	[2] 695	143	498	154	556	201	672
Mountain	38,832	8,341	41,014	[2] 10,423	[2] 51,657	8,725	56,508	12,711	58,600	10,616	45,576
Washington	20,359	6,030	20,874	4,915	24,317	5,231	21,491	5,897	24,348	5,777	23,353
Oregon	18,307	4,102	20,527	4,876	19,299	4,635	15,663	3,139	16,291	4,519	17,480
California	97,590	64,127	99,905	80,685	139,122	78,153	136,200	85,801	163,791	83,168	138,096
Pacific	134,256	74,349	141,306	90,476	182,738	88,019	173,354	94,837	204,430	93,464	179,409
Continental United States	9,503,483	2,538,965	[2] 9,497,078	[2] 3,216,600	[2] 10,424,338	3,381,448	11,427,056	3,555,902	11,898,050	3,247,546	12,010,507
Hawaii	18,384	15,536	24,382	25,438	28,174	29,990	25,545	29,077	29,356	30,237	28,927
Puerto Rico	100,828	94,059	127,576	142,418	141,307	121,965	100,228	102,381	107,322	92,239	131,620
Alaska	90	----------	----------	----------	107	1	116	----------	136	----------	----------
Territories	119,302	109,595	151,958	167,856	169,588	151,956	125,889	131,458	136,814	122,476	160,547
Total	9,622,785	2,648,560	[2] 9,649,036	[2] 3,384,456	[2] 10,593,926	3,533,404	11,552,945	3,687,360	12,034,864	3,370,022	12,171,054

[1] Branch surveys.

[2] Revised.

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STATISTICS ON FERTILIZERS AND LIMING MATERIALS IN THE UNITED STATES
MEHRING, A. L.; ADAMS, J. R.; JACOB, K. D. 2 OF 2

TABLE 97.—*Mixed fertilizers: Relative quantities of grades sold in continental United States, years ended June 30, 1925, 1934, 1939, and 1948–54* [1]

Grade	1925	1934 [2]	1939 [2]	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
0-9-27		0.12	0.08	0.48	0.16	0.50	0.32	0.13	0.17	0.26	0.29	0.37	0.24	0.17	0.10
0-10-4	0.01	1.16	1.02	.04											
0-10-10	1.15	.20	.51	.47	.18	.03		.03	.02			.03	.03	.02	.03
0-10-20			.04	.15	.36	.11	.04	.18	.15	.24	.16	.10	.42	.40	.32
0-10-30											.03	.14	.16	.23	.30
0-12-12	.08	.18	.47	4.45	1.70	2.71	2.31	1.16	1.50	1.90	1.08	1.06	1.29	.80	.43
0-14-7			.02	7.15	2.46	2.15	1.70	1.90	1.69	1.18	1.10	1.04	.95	.49	.21
0-14-10			.04	.76	.22	.22	.15	.16	.20	.42	1.00	.85	.29	.17	.05
0-14-14			.03	[3] 2.21	.31	.09	.08	.06	.08	.28	[4] .09	1.72	2.22	1.72	1.16
0-20-10			.09	.27	.03	.13	.20	.27	.63	.75	.71	.44	.28	.19	.15
0-20-20		.06	.21	.41	.07	.30	.35	.28	.20	.54	.07	1.50	1.56	1.97	2.25
2-8-2	4.61	.60	.03												
2-8-5	1.32	2.05	.13												
2-8-10	2.13	1.65	1.48	1.10	.06	.06	.06	.07	.02			.02	.04	.03	
2-9-3	2.31	2.38	.85	.006											
2-9-5	.20	1.71	1.87	.02											
2-10-2	3.41	1.04	.45	.003											
2-10-4	1.34	.62	1.01	.00	.09	.09	.07	.06	.05						
2-10-6	.15	.09	.93	3.24	1.91	.08	.05	.02	.02						
2-12-2	2.29	2.70	1.15					.03							
2-12-4	.37	1.33	1.42	.01	.11										
2-12-6	.76	3.68	3.52	11.34	16.54	13.40	13.58	14.30	14.26	10.45	7.31	4.31	2.15	1.01	.53
2-12-12		.02	.08	.01	.10	.45	.41	.47	.51	1.26	1.65	2.35	2.72	2.65	2.65
2-16-8		.12	.27	.24	.14	.20	.18	.15	.17	.28	.29	.21	.00	.02	
3-8-3	20.77	13.90	7.42	.02											
3-8-5	3.09	5.30	9.02	4.50	3.35	2.96	1.63	1.19	.58	.23	.20	.15	.00	.04	.05
3-8-6	.45	.79	2.17	.02				.02	.02						
3-8-7	.05	.05	.02	1.87	.06										
3-8-8	.50	.32	1.42	1.02	.51	.33	.29	.21	.19	.25	.21	.20	.18	.11	.08
3-9-3	3.21	2.71	.05	.008											
3-9-5	.21	.91	.63	.008											
3-9-6				10.87	8.76	6.66	8.18	8.37	6.41	6.57	6.49	6.28	5.40	4.34	3.99
3-9-9				1.30	.79	2.20	1.73	1.07	.96	1.76	2.28	2.56	2.75	2.95	3.21
3-9-12					.36	.46	.35	.20	.29	.25	.24	.20	.24	.24	.19
3-9-18		.08	.16	.48	.51	.66	.59	.41	.46	.05	1.07	1.49	1.24	1.00	.75
3-9-27											.05	.17	.54	.76	.81
3-10-3	3.44	1.51	.59	.03				.13	.06						
3-10-6	.11		1.72	.05											
3-10-10		.07	.21	.13	.08	.11	.14	.11	.07			.02	.04	.02	
3-12-6	.08	.41	1.28	5.05	4.13	8.12	8.13	7.29	7.61	6.83	6.67	5.34	4.47	3.10	1.82
3-12-12		.11	.38	1.26	2.01	3.21	3.93	3.43	5.01	7.72	10.15	13.50	15.41	14.50	11.31
3-18-9			.20	.21	.23	.47	.72	.69	1.06	1.15	1.28	.87	.73	.74	.48
4-6-8		.16	.13	.73	1.15	1.46	1.34	.74	.56	.61	.68	.63	.48	.33	.32
4-7-5	.06	.62	.07	1.31	1.48	1.15	1.42	1.24	.99	.88	.98	.87	.81	.85	.86
4-8-4	5.69	10.07	8.18	4.08	.23	.10	.25	.23	.15	.12	.13	.10	.11	.09	.09
4-8-5	.29	1.47	.33	.02				.08	.03						
4-8-6	.59	1.41	2.67	2.68	4.47	4.80	5.28	5.21	4.97	4.87	4.65	4.29	3.50	3.11	2.10
4-8-7	.96	3.02	1.27	.008											
4-8-8	.29	.83	1.95	2.30	1.97	2.88	2.95	1.78	1.89	1.73	1.84	1.94	1.78	2.14	2.58
4-8-10	.15	1.48	1.16	.03				.14	.05			.04	.27	.41	.57
4-8-12		.10	.28	1.87	.96	1.04	.79	.43	.53	.58	.60	.61	.62	.50	.34
4-9-3			.02	.74	.90	.90	.85	.76	.61	.59	.61	.68	.55	.50	.50
4-10-1	2.44	2.29	.91	1.95	4.79	.78	1.04	2.11	1.02	.42	.31				
4-10-5				1.50	.00				.02						
4-10-6		.15	.54	.64	5.34	4.84	5.57	6.62	6.75	6.43	5.17	4.53	4.20	3.76	3.37
4-10-7		.31	.65	4.37	.17	2.48	2.47	1.91	2.67	3.38	3.21	3.41	3.43	3.41	3.62
4-10-10		.04	.06	3.25	.16	.10	.00	.08	.06			.06	.05	.06	.06
4-12-4	1.22	1.71	1.72	1.02	4.46	4.03	5.06	6.85	5.68	4.41	3.60	2.67	1.67	1.24	.93
4-12-6			.04	.03	.22	.02			.04	.04	.13	.09	.06	.05	.02
4-12-8		.04	.13	.04	1.06	1.85	1.00	1.97	2.54	2.09	2.30	1.78	1.46	1.04	1.00

4-12-12				.01		.07		.02	.01	.13	.17	.24	.56	1.32	2.43
4-16-0					.03	.01	.10	.22	.60	.75	.45	.38	.20	.17	.08
4-16-4	.48	.61	.30	.06	.04	.05	.03	.03							
4-16-8	.01	.05	.02		.01				.15	.39	.38	.31	.42	.46	.34
4-16-16					.01	.01	.11	.01	.21	.37	.89	1.45	3.06	4.58	
4-24-12	.11	.28	.07	.02	.06	.06	.13	.13	.30	.52	.48	.58	.53	.36	
5-7-5	1.31	2.54	2.41	1.26	1.58	1.62	1.10	.25	.17	.18	.17	.15	.13	.17	.16
5-7-10	.18				.76	.62	.50	.54	.32	.16	.09	.05	.05	.03	.02
5-8-5	.96	.95	.50	.02								<.01	.02		
5-8-7	1.42	1.81	1.20	.53	1.06	.52	.45	.40	.29	.28	.26	.19	.16	.13	.11
5-10-5	.06	.62	1.06	1.40	6.12	5.69	6.18	7.16	7.44	7.80	7.25	6.58	6.13	5.68	5.38
5-10-10		.07	.36	.15	2.21	3.22	2.81	2.35	2.00	3.64	3.71	4.29	5.83	7.22	8.44
6-3-6		.06	.08	.24	.26	.22	.27	.22	.21	.19	.21	.21	.17	.14	.17
6-6-5	1.52	2.10	1.91	.83	.02	.02									
6-6-6		.08	.04	.10	.15	.21	.27	.29	.11	.13	.23	.26	.18	.51	.53
6-8-4		.03	3.10	.19	3.61	4.09	2.78	3.53	3.86	3.31	2.39	1.91	1.56	1.39	1.11
6-8-6		.11	.24	.02	1.55	1.82	1.91	1.84	2.44	2.20	2.38	1.93	1.78	1.55	1.28
6-8-8		.03	.27	.01	.02	.71	.62	.22	.48	.03	1.40	1.60	1.82	1.77	1.39
6-8-12			.04	.003	.03	.32	.12	.13	.21	.31	.32	.10	.30	.28	.26
6-9-6	.05		.09	.10	.02	.19	.14	.14	.10	.07	.08	.08	.09	.09	.07
6-9-12					.07	.28	.32	.43	.07	.37	.49	.31	.47	.46	.36
6-9-15			.01	.10	.17	.62	.37	.13	.10						
6-10-1	.01	.01	.10	.41	.41	.41	.36	.39	.49	.30	.44	.40	.42	.38	.37
6-12-6	.18	.31	.005				.03	.01	.14	.20	.22	.30	.35	.34	.31
6-12-12							.01	.02	.08	.04	.26	.59	.02	1.07	1.21
7-7-7		.07	.005	.21	.29	.28	.55	.17	.43	.42	.26	.25	.25	.24	
8-0-8			.02	.20	.25	.18	.10	.09	.05	.11	.13	.10	.08	.11	
8-8-4	.07	.11	.20	.35	.53	.50	.37	.26	.17	.16	.16	.14	.13	.13	
8-8-8			.008	.11	.31	.33	.32	.49	.58	.71	1.05	1.93	2.21	1.67	
8-10-12		.01	.05	.01	.12	.09	.07	.08	.09	.08	.10	.08	.09	.08	
8-12-16	.03	.02	.01	.44	.33	.31	.19	.10	.20	.21	.15	.19	.23	.11	
8-16-16	.14	.21	.000	.13	.22	.20	.13	.27	.21	.32	.25	.20	.44	.62	
8-21-8	.05	.02		.01					.0005	.11	.28	.43	.69	.60	
8-32-0									.001	.20	.22	.34	.34	.47	
10-6-10	.02	.21	.11	.19	.21	.25	.32	.32	.17	.13	.22	.26	.22	.29	
10-6-4	.03	.11	.10	.27	.28	.21	.21	.30	.23	.32	.21	.21	.25	.23	
10-10-0			.02	.08	.15	.18	.18	.33	.19	.15	.18	.13	.12	.05	
10-10-5			.25	.22	.30	.37	.37	.44	.37	.31	.32	.26	.24	.20	
10-10-10					.02	.03	.03	.07	.12	.27	.53	.01	2.39	4.00	
10-16-8			.02	.02	.05	.05	.01	.08	.06	.08	.10	.07	.07	.07	
10-20-0			.02	.06	.07	.12	.14	.21	.15	.28	.34	.57	.78	.77	
12-12-12										.01	.14	.22	.47	1.37	
12-24-12										.01	.00	.17	.24	.21	
17-7-0			.12	.14	.17	.17	.24	.27	.26	.18	.23	.19	.21	.13	
Other specified grades	29.69	19.55	14.96	5.082	2.29	3.11	3.01	4.01	4.01	3.934	5.29	5.87	6.08	7.01	10.53
Unspecified grades	.23	0	3.32	.73	.35	.53	.63	.66	.15	1.21	.51	.61	.60	.83	.81
Number of grades reported	886	1,033	982	591	262	271	306	335	613	813	838	997	1,148	1,326	1,220
Tonnage reported in survey	2,302,309	3,224,431	4,911,961	7,127,023	8,216,279	8,870,669	9,063,012	11,177,212	11,035,226	12,588,465	12,036,013	13,610,038	14,808,501	15,153,952	15,258,053
Completeness of survey, in percent	43	78	91	91	98	100	100	100	100	100	100	100	100	100	100
Reference to source	(3)	(139)	(146)	(149)	(153)	(154)	(2251)	(210)	(217)	(218)	(220)	(221)	(222)	(223)	(224)

[1] Includes Government distribution; data by States for 1931, 1930, 1913, and 1915 and by regions for subsequent years will be found in the reference material cited in the 1st line of the table. Goldenweiser (66) gives the tonnages of the different grades produced in 1917.

[2] Includes Puerto Rico but not Hawaii.

[3] A distribution of 135,269 tons by the U. S. Agricultural Adjustment Administration explains the increased consumption of 0-14-14.

[4] Revised.

[5] Previously unpublished survey data supplied by the National Fertilizer Association.

TABLE 98.—*Mixed fertilizers: Consumption of principal grades, by regions and States and Puerto Rico, year ended June 30, 1964* [1]

State and region and Puerto Rico	Principal grades in each region															Other specified grades		Total [2]
	5-10-10	6-8-12	8-12-12	6-3-6	8-16-16	8-12-16	5-8-7	7-7-7	10-10-10	0-15-30	5-10-5	6-0-0	8-0-16	0-14-14	6-8-8			
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Number* [3]	*Tons*	*Tons*
Maine	21,040	53,990	24,818		8,263	10,824	3,517	2,953	2,921	55	367	8,260	5,876	3,302		43	14,558	164,760
New Hampshire	3,838		253		1,881	14	914	889	913	841	141			185		24	1,956	11,825
Vermont	9,973		81		5,067	36	200	800	1,979	8,212	350			323	6	39	3,477	27,564
Massachusetts	17,015			8,718	4,002	77	0,986	5,909	5,009	421	5,301			790	1,205	27	14,497	69,116
Rhode Island	6,573		575		193	4	955	839	279	87	754			109	163	31	2,924	13,455
Connecticut	10,044		1,060	16,704	2,179	61	4,181	3,189	2,452	1,825	3,886			925	4,050	51	14,038	65,203
New England	68,089	53,990	26,787	25,422	19,585	17,019	16,816	14,609	12,643	11,444	10,802	8,260	5,876	5,634	5,427	106	51,450	351,913
	5-10-10	3-12-6	5-10-5	10-10-10	0-20-20	6-12-6	8-16-16	0-14-14	4-8-12	2-12-12	4-12-12	8-8-8	6-12-12	7-7-7	4-12-8			
New York	160,164	20,067	139,082	53,661	13,270	39,810	14,801	3,051		50	15	4,908	13,916	9,935	268	66	39,985	513,142
New Jersey	151,211	3,149	30,007	7,172	3,268	511	1,068	4,308	481	106	43	13,687	1,733	8,452	5,290	56	35,552	266,038
Pennsylvania	241,806	130,397	51,606	42,878	25,276	2,094	15,311	11,809	9,800	7,871	23,210	2,405	5,242	554	5,550	102	52,181	608,177
Delaware	44,065	3,732	2,483	4,591	1,832		4,237	3,409	3,117	4,252	1,253	434	1,368	267	873	51	12,407	88,773
District of Columbia	42	76	802	4					264	12				21	14	16	744	1,907
Maryland	82,056	65,717	28,225	12,015	3,991		2,343	9,531	19,104	16,070	2,874	3,034	1,851	1,956	4,020	68	38,139	292,025
West Virginia	21,766	16,937	4,348	2,598	4,087		237	2,818		1,710	99	10	535	2	4,488	38	8,216	67,851
Middle Atlantic	701,119	240,075	236,553	123,223	51,730	42,445	37,997	35,010	32,886	30,131	28,524	24,655	24,647	21,186	20,514	160	187,224	1,837,913
	4-10-6	3-9-6	3-9-9	2-12-12	4-8-8	4-8-8	4-12-12	5-10-10	5-10-5	4-7-5	6-8-6	4-8-10	8-12-12	6-6-6	4-9-3			
Virginia	68	67,811	34,914	101,530			25	103,128	76,093		14,673	4,777	10		4,903	45	187,250	685,101
North Carolina	323,195	350,440	158,704	142,960	205		10	148,818	46,542		03,288	72,013	32		50,626	41	133,723	1,400,646
South Carolina	174,383	60,192	202,107		22,467		12,101	12,918	50,260		5,872		81,711			28	35,932	672,023
Georgia	433	9,373	80,258	30,902	230,458	278,508	260,638	10,650	6,245	1	39,305		2,708	42	8,836	115	109,070	1,102,706
Florida	617	35	5,600	2,825	00,650	41,932	7,183	4,694	6,387	130,529	6,109	10,609	2,207	80,387	12,077	707	660,443	1,071,530
South Atlantic	498,696	487,851	487,643	308,307	357,890	320,530	308,957	280,208	185,437	130,530	129,337	87,459	86,848	80,429	76,442	931	1,135,436	5,022,006
	3-12-12	4-16-16	10-10-10	0-20-20	5-20-20	5-10-10	3-0-27	12-12-12	3-18-9	3-0-18	0-10-30	6-12-12	2-12-8	10-6-4	8-8-8			
Ohio	533,443	44,623	76,011	42,262	47,208	137,718	150	14,110	18,467	9,292	781	9,113	15,471	7,801	1,095	66	60,441	1,018,142
Indiana	302,033	265,936	140,098	59,212	45,438	13,421	31,050	16,355	10,022	14,278	13,155	3,916	3,615	1,250	5,279	60	37,542	1,024,106
Illinois	151,702	132,704	116,107	33,653	23,429	311	40,031	30,880	3,224	12,431	4,646	10,024	313	1,102	8,092	67	46,962	631,520
Michigan	226,244	112,912	34,670	25,792	26,903	12,234	2,330	18,777	30,877	10,814	3,769	2,974	3,355	4,855	505	57	22,301	545,231
Wisconsin	114,079	82,339	35,348	41,404	51,006	5	10,288	1,045	2,270	10,963	21,570	1,240		101	03	61	35,288	402,141
East North Central	1,387,501	618,601	402,224	202,233	194,134	163,689	100,073	87,173	71,400	60,778	43,024	27,276	22,754	15,203	14,974	136	202,534	3,621,134
	10-10-10	5-20-20	3-12-12	8-24-8	10-20-0	12-12-12	4-16-16	8-32-0	4-12-4	0-20-20	15-15-0	8-8-8	4-24-12	5-20-10	6-24-12			
Minnesota	13,767	34,935	6,256	17	4,663	185	38,946	8,733		23,578	120	5	19,005	10,147	33,848	61	57,337	251,544
Iowa	49,357	60,547	32,628	3,304	30,327	13,905	24,070	26,572	519	8,087	9,710	692	828	31,224	2,103	104	117,298	420,864
Missouri	44,632	4,364	57,033	77,110	3,598	74,061	8,827	80	50,091	21,483	2,112	48,636	18,043			61	56,265	466,735
North Dakota	302	158	267	24	841	35	797	10,388		53	123		2,052	136	3,741	35	4,141	23,058
South Dakota	152	106	17	60	0,391	35	29	1,758	4	32	2,240		123	40	183	46	2,204	13,399
Nebraska	857	143	96	886	13,683	1,285	24	10,315	102	732	20,023	23	361	27		43	17,359	65,046
Kansas	2,275	40	1,210	10,094	27,490	757	112	10,121	6,101	468	18,493	460	680	2		38	14,304	90,570
West North Central	111,342	100,302	98,418	98,395	95,039	90,056	72,805	68,007	56,817	55,033	52,830	40,816	42,001	41,582	30,875	159	268,908	1,343,116
	4-10-7	6-8-8	6-8-4	5-10-5	3-9-6	6-12-12	3-12-12	5-10-15	0-14-14	6-8-6	5-10-10	2-12-6	4-12-8	8-8-8	4-12-12			
Kentucky		1,438		4,460	20,510	5,149	66,188	08,202	2,265	55,474	28,730	45,469	41,741	10,705	556	64	92,836	452,773
Tennessee	1,428	5,582	3,633	4,410	90,033	104,944	30,035	3,031	627	1,981	18,462	5,557	8,704	3,322	3,112	70	104,671	395,132
Alabama	493,439	64,019	152,401	2,725	31	10	49		54,231	1,317	4	9	5	7,880	28,000	40	32,783	837,533
Mississippi	6,091	165,490	7,411	120,052		5	1,310		7,801	88	9,709			14,050		25	16,410	354,408
East South Central	500,958	236,529	163,445	137,647	120,174	110,108	97,582	71,233	64,924	58,860	56,806	51,055	50,450	40,957	32,298	131	246,700	2,030,846

	5-10-5	8-8-8	4-12-4	3-12-12	6-8-12	10-20-10	0-14-7	12-12-12	12-24-12	3-9-18	6-8-8	13-13-13	5-10-10	10-20-0	3-0-27			
Arkansas	63,170	5,632	9,264	3,210	36,302	9,089	1,332	7,650	1,302	18,318	61	2,104	1,193	23	10,406	57	24,735	193,797
Louisiana	34,125	32,968	13,621	23,942	607	2,014	1,602	12,880	3,039	146	14,736	4,368	4,040	31	7	37	25,236	173,382
Oklahoma	26,906	881	8,347	1,051	2	6,525	588	177	2,761	1,228		314	1,277	4,650		30	9,807	64,514
Texas	113,058	25,199	16,251	10,906	510	11,279	20,146	2,917	13,138	62	116	6,034	5,172	6,736		94	49,864	281,387
West South Central	237,265	64,679	47,483	39,109	37,421	28,907	23,668	23,624	20,240	19,754	14,913	12,820	11,682	11,440	10,413	158	109,642	713,080
	10-20-0	12-24-0	10-10-0	6-10-4	10-10-10	15-11-0	10-18-8	10-20-5	20-10-0	6-30-0	10-18-5	14-14-7	14-7-0	10-35-0	10-12-8			
Montana	2,603			225			1			790	268					19	347	4,234
Idaho	635		1,313	66	2	2,047	1,062		18	283	287					39	1,033	6,746
Wyoming	371	480		26						15	94	254		740		13	419	2,370
Colorado	745	7,197		199	615		977			177	362	36		114	809	31	3,456	14,690
New Mexico	370		31	60	7								296			18	1,377	2,147
Arizona	3,382		4,254		1,483			2,017	1,624			735	628			46	7,339	21,462
Utah	888		113	1,498	28	14	0			317	62					30	692	3,621
Nevada	123			467								87				13	196	873
Mountain	9,117	7,657	5,711	2,547	2,135	2,061	2,049	2,017	1,642	1,582	1,073	1,112	924	854	809	124	14,859	56,152
	10-10-5	17-7-0	8-8-4	6-10-4	8-10-12	10-10-10	15-8-4	10-16-8	5-10-10	6-9-6	16-10-0	4-10-10	6-20-20	10-12-10	10-20-20			
Washington	598	4		4,522		1,132		237	5,639				2,531		2,473	84	12,494	29,630
Oregon	136	15	2	1,042		538	362	7,597	1,507				1,709		1,227	54	7,844	21,979
California	27,318	19,267	18,454	8,094	10,205	8,023	7,894	65	94	6,669	5,810	5,264	11	3,772	2	584	102,322	221,264
Pacific	28,052	19,286	18,450	11,658	10,205	9,693	8,256	7,899	7,240	6,669	5,810	5,264	4,251	3,772	3,702	600	122,660	272,873
	14-2-8	12-6-10	14-4-10	15-4-7	12-4-10	13-3-12	6-8-10	10-10-8	8-6-10	10-6-14	9-10-5	12-3-16	12-10-5	16-1-5	12-2-10			
Puerto Rico	32,516	23,644	22,651	21,553	17,393	16,124	14,025	12,925	9,520	5,834	5,133	5,116	4,820	4,734	3,620	25	24,251	223,859

[1] Scholl, Wallace, and Fox (224). Similar data for earlier years are given in previous Branch surveys. The total consumption in Hawaii was 59,164 tons of mixed goods, which were manufactured to consumer's specifications.

[2] Includes unspecified grades.

[3] The number of mixtures shown for each State and region is exclusive of mixtures not specified by grade, although their tonnages are included in the totals.

TABLE 99.—*Mixed fertilizers: Distribution of consumption, by type, selected years 1917–53* [1]

Calendar year	N–P_2O_5–K_2O	P_2O_5–K_2O	N–P_2O_5	N–K_2O	All other [2]
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
1917	35.32	1.22	63.46	0	0
1919	72.04	1.70	26.24	.02	0
1925	92.86	4.65	2.30	.10	0
1931	95.93	3.63	.30	.14	0
1934	95.04	3.45	1.22	.24	.05
1939	93.60	5.17	.69	.36	.18
1941	92.34	5.72	1.20	.38	.36
1945	91.64	6.36	.80	.80	.31
1946	92.14	5.45	.92	.73	[3] .76
1947	93.11	4.69	1.46	.02	.22
1948	91.72	5.70	1.78	.58	.22
1949	91.30	6.51	1.38	.57	.24
1950	90.37	7.32	1.52	.58	.21
1951	89.00	8.22	1.87	.73	.17
1952	89.25	7.96	1.83	.96	0
1953	90.75	6.00	2.08	1.17	0

[1] Excludes such multiple-nutrient products as ammoniated superphosphate, *ammonium phosphates* (11–48, 16–20, and other grades), and potassium nitrate. Continental United States.

[2] Mixed fertilizers containing one primary nutrient and guaranteed amounts of trace or secondary nutrients.

[3] Includes a small quantity of unspecified mixtures.

TABLE 100.—*Mixed fertilizers: Consumption, total retail value, and the average retail price per ton and per unit (20 pounds) of primary nutrients in continental United States, decennial years 1880–1920 and annually 1925–51*

Calendar year	Consumption [1]	Total retail value	Average retail price	
			Per ton [2]	Per unit [3]
	Tons	*1,000 dollars*	*Dollars*	*Dollars*
1880	350,000	14,081	40.23	2.98
1890	800,000	25,096	31.37	2.29
1900	1,750,000	44,030	25.16	1.81
1910	3,400,000	94,112	27.68	1.87
1920	4,002,000	208,064	51.99	3.74
1925	4,710,000	174,835	37.12	2.32
1926	4,871,000	176,281	36.19	2.18
1927	4,581,000	156,853	34.24	2.05
1928	5,317,000	191,837	36.08	2.11
1929	5,378,000	186,455	34.67	1.97
1930	5,486,000	186,579	34.01	1.90
1931	4,285,000	128,807	30.06	1.67
1932	3,100,000	81,468	26.28	1.46
1933	3,539,000	84,724	23.94	1.33
1934	3,960,000	111,830	28.24	1.56
1935	4,367,000	122,538	28.06	1.55
1936	4,887,000	145,681	29.81	1.62
1937	5,749,000	173,505	30.18	1.64
1938	5,123,000	156,559	30.56	1.60
1939	5,316,000	163,308	30.72	1.60
1940	5,348,000	164,344	30.73	1.56
1941	5,689,000	182,048	32.00	1.60
1942	6,700,000	235,706	35.18	1.75
1943	8,148,646	290,907	35.70	1.75
1944	8,498,696	311,902	36.70	1.75
1945	9,026,745	340,760	37.75	1.75
1946	10,930,704	409,136	37.43	1.75
1947	11,443,813	443,629	38.10	1.77
1948	11,977,289	517,299	43.19	1.96
1949	12,042,448	548,895	45.58	2.01
1950	12,713,678	572,370	45.02	1.92
1951	13,805,786	652,738	47.28	1.95

[1] 1880–1942, the quantities given in table 94 minus an estimate for the quantities consumed in the Territories; 1943–51, based on Branch surveys.

[2] Computed from the unit price in the last column and the average total primary-nutrient content given in table 95.

[3] 1880–1935, Mehring and Deming (*145*); 1936–43, computed as in (*145*); 1944–51, weighted average computed from the number of tons of each grade (Branch surveys), the average price of that grade for the United States in the year shown, and the total units of nitrogen, available phosphoric oxide, and potash.

TABLE 101.—*Mixed fertilizers: Average prices per ton paid by United States farmers for some representative grades on April 15 and September 15, 1948–53* [1]

Grade	1948		1949		1950		1951		1952		1953	
	Apr. 15	Sept. 15	Apr. 15	Sept. 15	Apr. 15	Sept. 15	Apr. 15	Sept. 15	Apr. 15	Sept. 15	Apr. 15	Sept. 15
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
0–12–12	39.20	40.70	40.10	39.80	38.50	38.70	41.50	42.20	42.40			
0–14–7	35.50	37.00	37.40	37.00	35.60	35.80	37.00	37.80	37.70	38.30	39.10	39.30
0–14–14										43.80	43.40	43.40
0–20–20										64.30	64.90	65.40
2–12–6 [2]	38.10	39.50	40.40	39.90	38.40	38.60	41.20	41.90	42.00	43.40	43.50	43.50
2–12–12							41.60	42.60	43.00	43.20	43.50	43.20
3–9–6			42.70	41.70	39.90	40.00	41.80	43.50	44.00	44.60	43.80	43.50
3–9–9			40.90	40.50	38.80	38.70	40.70	41.10	41.80	41.80	40.80	40.20
3–12–6 [3]	39.80	40.60	40.80	40.30	39.20	39.20	40.40	41.60	42.50	43.10	43.40	43.80
3–12–12			48.20	48.00	45.90	45.60	48.60	49.80	49.50	50.90	50.60	50.60
3–18–9			54.50	54.60	54.30	54.30	57.30	58.40	58.50			
4–6–8							45.00	43.50	43.00	44.00	44.00	43.50
4–7–5			39.00	38.50	38.50	38.00	41.50	41.50	40.00	42.00	41.00	39.00
4–8–6			40.50	39.50	37.60	37.30	38.50	39.40	39.30	39.40	37.60	37.80
4–8–8			41.70	41.30	40.00	40.30	42.10	42.90	42.60	43.90	42.60	41.40
4–10–4				39.40	37.20	37.30						
4–10–6			40.80	40.30	39.10	39.10	40.80	41.60	43.10	43.00	42.20	42.30
4–10–7			41.00	40.90	39.00	39.20	41.10	41.10	41.50	41.60	40.50	41.10
4–12–4 [4]	42.70	42.50	43.40	42.20	41.00	41.50	43.40	43.90	44.80	45.20	45.50	46.50
4–12–8			47.20	48.00	46.30	46.10	48.30	49.00	49.60	50.20	51.00	50.30
4–16–0				47.30	46.40	47.00						
4–24–12							73.40	74.40	74.70	75.50	75.00	77.70
5–8–7			53.30	49.20	50.20							
5–10–5	42.20	43.80	44.50	44.40	43.50	43.30	44.90	45.50	46.70	46.50	46.80	46.90
5–10–10			52.00	51.40	49.50	48.80	49.50	51.00	52.60	52.10	52.90	53.10
6–8–4			43.40	42.90	41.10	43.10	43.00	43.40	43.00	43.40	42.50	42.60
6–8–6			47.30	46.00	45.00	45.00	46.30	47.50	47.80	48.50	48.20	48.10
6–8–8							48.00	48.10	47.90	48.80	47.30	47.30
6–9–12			58.00	58.00	55.00	55.00	57.00	57.00	58.00	59.00		
6–10–4		66.10	60.80	61.50	60.30	61.00	64.60					
10–20–0				80.50	79.30	78.60	83.00	83.00	84.20	85.60	85.30	86.70
17–7–0				78.00	78.10	77.30	82.00	82.00	84.00	81.00		

[1] U. S. Bureau of Agricultural Economics (*295*, April and September issues); agricultural prices also reported for individual States.

[2] The average 1935–39 price for 2–12–6 was $26.30 and the 1943–47 average was $32.80.

[3] The average 1943–47 price for 3–12–6 was $34.40.

[4] The average 1943–47 price for 4–12–4 was $35.70.

TABLE 102.—*All fertilizers: Estimated consumption of mixed fertilizers and separate materials for nonfarm use, their primary-nutrient content, and percentage of all fertilizers, by regions and States, year ended June 30, 1948* [1]

State and region	Consumption for nonfarm use				Primary-nutrient content of nonfarm fertilizers					
					Nitrogen		Available phosphoric oxide		Potash	
	Mixtures [2]	Materials [3]	Total	Percentage of all fertilizers	Quantity	Percentage of nitrogen in all fertilizers	Quantity	Percentage of available phosphoric oxide in all fertilizers	Quantity	Percentage of potash in all fertilizers
	Tons	*Tons*	*Tons*	*Percent*	*Tons*	*Percent*	*Tons*	*Percent*	*Tons*	*Percent*
Maine	584	1,244	1,828	5.28	82	0.41	127	0.47	56	0.19
New Hampshire	326	370	696	2.20	43	4.17	60	1.15	20	1.49
Vermont	755	145	900	3.24	42	4.38	100	.96	11	.50
Massachusetts	3,308	4,837	8,145	16.35	430	9.57	583	7.00	202	3.38
Rhode Island	1,298	849	2,147	13.79	113	12.80	160	7.76	68	4.66
Connecticut	2,422	2,600	5,022	6.80	248	5.53	538	8.34	127	2.36
New England	8,693	10,045	18,738	5.24	938	3.49	1,568	2.65	483	1.05
New York	8,370	6,580	14,956	2.81	820	3.55	1,178	1.50	550	1.81
New Jersey	4,419	3,226	7,645	6.53	361	2.84	701	2.61	253	1.23
Pennsylvania	3,260	6,473	9,739	5.15	423	2.35	878	.92	226	.07
Delaware	1,267	164	1,431	2.88	76	3.97	135	2.10	65	1.60
District of Columbia	291	369	660	54.84	28	28.86	43	27.22	21	24.71
Maryland	4,508	1,059	5,567	2.56	287	3.17	573	1.97	218	1.33
West Virginia	603	239	842	.94	41	1.78	65	.42	35	.98
Middle Atlantic	22,730	18,110	40,840	3.12	2,036	3.03	3,373	1.46	1,371	1.25
Virginia	2,661	769	3,430	.49	185	.65	363	.44	139	.38
North Carolina	759	2,509	3,268	.72	177	.22	149	.10	70	.08
South Carolina	963	220	1,183	.13	53	.09	122	.15	50	.10
Georgia	2,021	3,346	6,267	.75	593	.96	417	.37	149	.24
Florida	6,597	5,229	11,826	3.85	668	1.92	776	1.48	604	1.23
South Atlantic	13,901	12,073	25,974	.73	1,657	.64	1,827	.38	1,012	.35
Ohio	4,341	10,780	15,121	14.70	937	4.17	744	.69	223	.36
Indiana	6,212	1,889	8,101	1.11	370	1.88	759	.76	560	.88
Illinois	5,720	9,808	15,528	1.55	865	6.28	955	1.30	393	1.00
Michigan	1,329	11,537	12,866	16.75	1,311	12.12	389	.70	83	.27
Wisconsin	3,852	3,716	7,568	4.12	418	3.13	548	.94	222	.58
East North Central	21,454	37,730	59,184	2.80	3,901	4.87	3,395	.86	1,481	.63
Minnesota	6,478	2,518	8,996	4.20	452	8.01	830	2.10	320	2.47
Iowa	1,323	1,221	2,544	.87	147	1.29	190	.42	64	.47
Missouri	8,772	2,677	11,449	3.53	612	5.59	1,089	2.53	422	2.78
North Dakota	450	0	450	2.14	19	3.02	51	.88	20	1.35
South Dakota	118	31	149	1.64	7	1.92	15	.81	5	4.90
Nebraska	1,098	923	2,021	18.19	223	5.26	117	4.37	66	90.41
Kansas	2,028	713	2,741	3.79	135	3.12	247	1.36	95	7.29
West North Central	20,267	8,083	28,350	2.84	1,595	4.24	2,545	1.03	992	2.22
Kentucky	3,625	521	4,146	1.01	193	1.37	422	.71	183	.88
Tennessee	1,843	1,511	3,354	.73	217	1.30	258	.40	112	.54
Alabama	1,482	665	2,147	.20	109	.19	175	.17	85	.20
Mississippi	629	2,898	3,527	.67	636	.97	66	.12	33	.15
East South Central	7,579	5,595	13,174	.48	1,155	.75	921	.33	413	.30
Arkansas	1,206	18	1,224	.96	53	.20	146	.82	54	.41
Louisiana	1,107	1,020	2,127	.83	135	.58	262	1.04	53	.60
Oklahoma	848	609	1,455	1.98	94	4.89	109	1.32	30	2.53
Texas	3,733	2,272	6,005	1.41	378	1.03	644	.97	174	1.69
West South Central	6,892	3,919	10,811	1.10	660	1.01	1,161	.94	320	.95
Montana	24	120	144	1.23	9	1.54	6	.17	1	1.35
Idaho	44	165	209	.36	9	.32	$	.07	3	.61
Wyoming	7	1	8	1.10	.6	.23	.5	.04	.3	1.67
Colorado	1,122	999	2,121	7.69	123	5.74	152	2.24	65	6.23
New Mexico	126	188	314	6.08	14	1.58	17	.77	11	32.35
Arizona	29	17,502	17,531	26.88	352	4.52	231	2.94	353	73.39
Utah	175	343	518	3.15	25	1.89	30	.88	8	9.52
Nevada	6	130	136	16.11	10	30.88	5	2.53	1	7.33
Mountain	1,533	19,508	21,041	10.38	543	3.30	449	1.19	442	19.71
Washington	3,849	2,975	6,824	8.98	339	5.29	490	5.54	166	4.30
Oregon	1,017	1,292	2,309	2.91	110	1.56	208	1.99	43	1.57
California	30,706	85,407	116,173	10.05	4,352	4.17	5,325	10.01	2,972	20.58
Pacific	35,432	89,674	125,106	9.48	4,801	4.08	6,223	8.35	3,181	15.11
United States	138,481	204,737	343,218	2.66	17,286	2.10	21,402	1.17	9,895	1.09

See footnotes on p. 103.

TABLE 103.—*All fertilizers: Number of plants and employees, expenses in the fertilizer industry, and fertilizer production and value, census years 1859–1951* [1]

Calendar year	The fertilizer industry							Fertilizer production [5]		
	Plants	Wage earners	Salaried officials and employees [2]	Wages	Salaries	Cost of materials [3]	Value of all products shipped [4]	Quantity	Value [6]	
									Total	Per ton
	Number	*Average number*	*Number*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 tons*	*1,000 dollars*	*Dollars*
1859	47	309	----------	[7] 95	----------	591	891	[8] 32	891	27.84
1869	126	2,501	----------	[7] 767	----------	3,808	5,815	[8] 153	5,815	38.01
1879	364	8,598	----------	[7] 2,648	----------	15,595	23,651	727	19,921	27.40
1889	398	9,026	----------	[7] 4,671	----------	25,114	39,181	1,899	35,520	18.70
1899	422	11,681	1,712	4,185	2,125	28,958	44,657	2,887	46,209	16.01
1904	399	14,184	1,613	5,127	1,934	39,288	58,541	3,502	63,009	17.54
1909	550	18,310	3,317	7,477	4,406	69,522	103,980	5,618	111,871	19.91
1914	784	22,815	5,113	10,532	7,242	107,955	153,196	8,432	169,018	20.04
1919	800	26,296	6,007	25,363	11,572	185,041	281,144	8,237	284,545	34.54
1921	588	16,898	4,376	16,026	9,820	144,978	180,375	5,094	174,879	29.18
1923	573	18,572	4,769	16,365	9,759	127,980	183,089	7,626	177,227	23.24
1925	589	19,844	4,706	17,743	9,763	137,808	206,773	8,229	195,040	23.70
1927	621	18,812	3,980	17,650	8,936	138,143	190,385	8,123	173,810	21.40
1929	638	20,926	4,051	17,884	9,398	159,801	232,511	9,320	222,731	23.90
1931	590	14,551	----------	12,146	----------	106,481	154,350	6,968	140,718	20.19
1933	522	13,063	----------	7,274	----------	69,053	94,939	5,196	82,811	15.94
1935	670	17,473	3,223	10,987	6,081	93,365	140,386	6,460	120,640	18.89
1937	729	20,391	----------	15,027	----------	129,118	194,129	8,944	173,647	19.41
1939	703	18,807	5,274	13,731	9,704	128,731	185,990	8,766	161,887	18.95
1947	704	26,574	5,359	52,758	18,547	333,183	504,505	17,651	466,541	26.43
1949	----------	26,132	5,860	55,022	23,855	420,780	599,255	[9] 18,000	590,000	32.78
1950	----------	24,702	6,692	54,036	24,417	415,180	587,554	[9] 20,000	658,000	32.90
1951	----------	28,199	7,122	70,067	31,144	526,440	773,210	[9] 20,500	768,000	37.46

[1] U. S. Bureau of the Census (*276*). Comprises only superphosphate and dry-mixing plants with annual productions valued at $500 or more in 1859–1919 and $5,000 or more in 1921–51.

[2] Excludes proprietors and firm members.

[3] Includes the cost of supplies, fuel, purchased power, and containers for products but not contract work.

[4] Includes the value of secondary products such as insecticides, fluosilicates, boneblack, grease, and sulfuric acid sold.

[5] These data involve some duplication: for example, superphosphate, reported as production by one manufacturer may be included in the mixed fertilizers reported by another.

[6] These values do not include secondary products of the fertilizer industry, but do include fertilizers produced by other industries as secondary products. Because of this, the total value given here is not strictly comparable with that given in "Value of all products shipped."

[7] Wages and salaries combined.

[8] Estimated.

FOOTNOTES FOR TABLE 102:

[1] Scholl and Wallace (*219*). Does not include 130,000 tons of peat used for nonfarm purposes. The numbers of packages of different sizes were as follows: 1 ounce, 44,300,000; 1 pound, 5,500,000; 5 pounds, 5,500,000; 10 pounds, 2,200,000; 25 pounds, 1,200,000; 50 pounds, 2,400,000; and 100 pounds, 700,000.

[2] 5–10–5, 31,955; 4–12–4, 30,249; 6–10–4, 24,520; 8–7–3, 4,135; 10–6–4, 3,880; 6–0–6, 3,418; 3–12–12, 3,193; 10–8–6, 1,568; 3–6–2, 1,509; 8–6–4, 1,484; and 4–12–8, 1,227 tons. The remaining 31,242 tons was distributed among 207 other specified grades and among unspecified grades.

[3] Including dried cattle manure, 80,053; sewage sludge, 78,350; dried sheep manure, 13,535; ammonium sulfate, 12,976; raw bonemeal, 6,483; and steamed bonemeal, 5,082 tons.

TABLE 104.—*All fertilizers: Foreign trade, census years 1909–19 and annually 1920–54*

Calendar year	Imports [1]		Exports [2]	
	Quantity	Value	Quantity	Value
	1,000 tons	*1,000 dollars*	*1,000 tons*	*1,000 dollars*
1909	[3] 1,200	26,195		
1914	[3] 1,700	32,504		
1919	[3] 700	23,406		
1920	[3] 2,600	123,432		
1921	766	31,278	980	15,000
1922	1,503	45,263	1,047	16,640
1923	2,082	64,050	1,232	20,794
1924	2,120	66,586	1,197	16,508
1925	2,541	78,072	1,279	17,209
1926	2,333	69,239	1,235	20,040
1927	2,037	58,842	1,424	17,724
1928	2,839	78,118	1,365	16,094
1929	2,587	72,340	1,718	20,441
1930	2,201	59,151	1,738	15,284
1931	1,602	44,733	1,303	13,011
1932	908	18,689	948	8,653
1933	1,400	24,674	1,151	8,260
1934	1,414	26,361	1,463	12,544
1935	1,574	29,418	1,662	14,809
1936	1,756	35,109	1,850	17,750
1937	2,292	40,725	1,703	16,954
1938	1,740	36,496	1,757	10,531
1939	1,622	33,946	1,562	17,141
1940	1,495	28,688	1,437	20,224
1941	1,214	25,365	1,626	19,062
1942	1,214	27,317	964	14,644
1943	1,345	34,338	888	19,400
1944	1,448	35,506	877	15,305
1945	1,665	41,327	1,023	18,237
1946	1,272	37,684	1,264	22,379
1947	1,268	43,453	3,119	93,405
1948	1,409	56,821	2,747	77,674
1949	1,453	62,685	3,263	92,163
1950	1,913	74,563	3,421	77,003
1951	2,499	101,023	2,582	50,791
1952	2,474	114,557	2,316	43,500
1953	2,930	137,608	2,938	42,104
1954	2,671	121,842	3,644	61,879

[1] U. S. Bureau of Foreign and Domestic Commerce (*270*), U. S. Bureau of Statistics (*275*), and U. S. Bureau of the Census (*280, 284, 285*). The values given here for 1909–24 include most or all of the following: apatite, crude phosphate, crude bones, bone dust, bone ash, calcium cyanamide, ammonium sulfate, sodium nitrate, saltpeter, dried blood, guano, kainit, manure salts, sulfate of potash, murinte of potash, and fertilizers n.e.s., but they *do not* include gypsum, peat moss, sulfur, or pyrites, one or more of which are included in other published data. The values given here for 1925–54 are the sums of the data in the fertilizer group.

[2] U. S. Bureau of Foreign and Domestic Commerce (*270*) and U. S. Bureau of the Census (*280, 284, 287*). Includes reexports and exports for Lend-Lease, United Nations Relief and Rehabilitation Administration, and the Army Civilian Supply programs during and after World War II.

[3] The quantity is given in the original report for all fertilizers except "Other fertilizers, n.e.s." for which a value only is given. The tonnage of these miscellaneous items was estimated from their value so that a total quantity could be shown.

TABLE 105.—*All fertilizers: Consumption and primary-nutrient content, calendar years decennially 1850–90 and annually 1890–1958, and years ended June 30, 1934, 1939, and 1948–54*[1]

Year	Consumption of fertilizer	Consumption of primary nutrients				Primary-nutrient content			
		Nitrogen	Available phosphoric oxide	Potash	Total	Nitrogen	Available phosphoric oxide	Potash	Total
Calendar year:	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*Percent*	*Percent*	*Percent*	*Percent*
1850	53	3	4	1	8	5.66	7.55	1.89	15.10
1860	164	10	12	3	25	6.10	7.32	1.83	15.25
1870	321	14	31	4	49	4.36	9.66	1.25	15.27
1880	753	19	70	13	102	2.52	9.30	1.73	13.55
1890	1,396	38	132	31	201	2.73	9.50	2.23	14.46
1891	1,584	43	150	36	229	2.71	9.47	2.27	14.45
1892	1,504	40	141	35	216	2.66	9.38	2.33	14.37
1893	1,715	45	160	42	247	2.62	9.33	2.45	14.40
1894	1,773	45	165	45	255	2.54	9.31	2.54	14.39
1895	1,578	39	147	42	228	2.47	9.32	2.66	14.45
1896	1,888	50	174	54	278	2.65	9.22	2.86	14.73
1897	2,131	51	195	63	309	2.30	9.15	2.96	14.50
1898	2,333	55	212	71	338	2.36	9.09	3.04	14.49
1899	2,603	60	230	82	378	2.30	9.07	3.15	14.52
1900	2,730	62	246	86	394	2.27	9.01	3.17	14.45
1901	3,044	68	282	90	440	2.23	9.26	2.96	14.45
1902	3,084	70	284	96	450	2.27	9.21	3.11	14.59
1903	3,382	77	311	108	496	2.28	9.20	3.19	14.67
1904	3,704	84	344	122	550	2.27	9.29	3.29	14.85
1905	3,913	90	368	129	587	2.30	9.40	3.30	15.00
1906	4,249	99	391	144	634	2.33	9.20	3.39	14.92
1907	4,307	101	392	151	644	2.35	9.10	3.51	14.96
1908	4,449	107	400	160	667	2.41	8.99	3.60	15.00
1909	4,821	125	434	178	737	2.59	9.00	3.69	15.28
1910	5,547	140	469	211	856	2.63	9.00	3.80	15.43
1911	6,108	162	544	232	938	2.65	8.91	3.80	15.36
1912	5,852	157	521	222	900	2.68	8.90	3.79	15.37
1913	6,416	173	571	244	988	2.70	8.90	3.80	15.40
1914	7,191	210	662	237	1,115	3.00	9.20	3.29	15.49
1915	5,418	206	515	81	802	3.80	9.51	1.50	14.81
1916	5,214	208	505	16	729	3.99	9.69	.31	13.99
1917	6,087	213	596	33	842	3.50	9.79	.54	13.83
1918	6,580	217	625	46	888	3.30	9.50	.70	13.50
1919	6,751	219	641	88	948	3.24	9.49	1.30	14.03
1920	7,296	228	660	257	1,145	3.12	9.05	3.53	15.70
1921	4,977	159	443	189	791	3.19	8.90	3.80	15.89
1922	5,798	191	516	226	933	3.29	8.90	3.90	16.09
1923	6,571	230	591	237	1,058	3.50	8.90	3.61	16.10
1924	6,999	252	630	259	1,141	3.60	9.00	3.70	16.30
1925	7,503	279	680	283	1,242	3.72	9.06	3.77	16.55
1926	7,531	[2] 282	[2] 695	290	[2] 1,267	3.74	9.23	3.85	16.82
1927	7,074	[2] 271	[2] 660	[2] 286	[2] 1,217	3.83	9.33	4.04	17.20
1928	8,215	312	776	333	1,451	4.16	9.45	4.05	17.66
1929	8,268	352	774	338	1,464	4.29	9.43	4.12	17.84
1930	8,425	378	794	354	1,526	4.49	9.42	4.20	18.11
1931	6,541	301	611	275	1,187	4.60	9.34	4.20	18.14
1932	4,545	214	413	192	819	4.71	9.09	4.22	18.02
1933	5,110	240	464	222	926	4.69	9.08	4.34	18.11
1934	5,794	275	530	263	1,068	4.75	9.15	4.54	18.44
1935	6,531	312	597	307	1,216	4.77	9.14	4.69	18.60
1936	7,222	350	673	350	1,373	4.85	9.32	4.85	19.02
1937	8,433	412	794	416	1,622	4.88	9.42	4.93	19.23
1938	7,758	384	744	393	1,521	4.95	9.59	5.07	19.61
1939	7,993	398	789	409	1,596	4.98	9.88	5.12	19.98
1940	8,656	410	912	435	1,766	4.84	10.54	5.03	20.41
1941	9,607	458	994	467	1,919	4.77	10.34	4.86	19.97
1942	10,331	[2] 398.6	1,130.8	547	[2] 2,076.4	3.86	10.95	5.29	20.10
1943	11,734	508.7	1,237.5	642.8	2,389.0	4.33	10.55	5.48	20.36
1944	13,331	[2] 634.6	[2] 1,405.3	649.0	[2] 2,688.9	4.76	10.54	4.87	20.17
1945	[2] 14,128	[2] 640.9	[2] 1,438.8	[2] 752.0	[2] 2,831.7	4.54	10.18	5.32	20.04
1946	[2] 16,166	759.2	1,673.3	853.8	[2] 3,286.3	4.70	10.35	5.28	20.33
1947	17,308	835.7	1,775.3	879.2	3,490.2	4.80	10.20	5.05	20.05
1948	17,506	841.3	1,843.1	956.1	3,640.5	4.78	10.47	5.43	20.68
1949	17,928	911.5	1,883.9	1,064.2	3,859.6	5.08	10.51	5.94	21.53
1950	19,760	1,126.0	2,071.8	1,215.3	4,413.1	5.70	10.49	6.15	22.34
1951	21,058	1,365.9	2,090.3	1,412.6	4,768.8	6.01	9.93	6.71	22.65
1952	22,797	1,485.0	2,218.7	1,607.9	5,311.6	6.51	9.73	7.05	23.29
1953	22,631	1,647.9	2,209.1	1,719.5	5,576.5	7.28	9.76	7.60	24.64

See footnotes at end of table, p. 106.

TABLE 105.—*All fertilizers: Consumption and primary-nutrient content, calendar years decennially 1850–90 and annually 1890–1958, and years ended June 30, 1934, 1939, and 1943–54* [1]—Continued

Year	Consumption of fertilizer	Consumption of primary nutrients				Primary-nutrient content			
		Nitrogen	Available phosphoric oxide	Potash	Total	Nitrogen	Available phosphoric oxide	Potash	Total
Year ended June 30:	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*Percent*	*Percent*	*Percent*	*Percent*
1934	5,707	270.0	515.0	258.0	1,043.0	4.73	9.03	4.51	18.30
1939	7,913	384.4	781.5	399.0	1,564.9	4.86	9.88	5.04	19.78
1943	11,466	446.0	1,270.0	634.6	2,345.5	3.84	11.08	5.54	20.46
1944	12,603	617.0	1,296.6	641.8	2,555.4	4.90	10.29	5.09	20.28
1945	13,406	630.3	1,353.1	729.5	2,712.9	4.68	10.05	5.41	20.14
1946	15,128	701.1	1,555.8	807.3	3,064.2	4.63	10.28	5.34	20.25
1947	16,830	783.0	1,735.9	858.5	3,378.0	4.65	10.31	5.10	20.06
1948	17,818	856.7	1,853.6	920.7	3,631.0	4.81	10.40	5.17	20.38
1949	18,543	919.9	1,941.7	1,073.1	3,934.7	4.96	10.47	5.79	21.22
1950	18,344	1,005.5	1,940.9	1,103.1	4,058.5	5.48	10.63	6.01	22.12
1951	20,991	1,237.6	2,109.9	1,379.8	4,726.7	5.89	10.05	6.57	22.51
1952	22,432	1,422.2	2,199.4	1,581.5	5,203.1	6.34	9.80	7.05	23.19
1953	23,413	1,637.1	2,270.8	1,738.2	5,646.1	6.99	9.70	7.42	24.11
1954	22,773	1,847.4	2,242.1	1,806.0	5,895.5	8.11	9.84	7.93	25.88

[1] Calendar years 1850–1942, U. S. Bureau of the Census (*289*); other calendar years based on Branch surveys and all fiscal years from Branch surveys. Includes Alaska, Hawaii, and Puerto Rico and fertilizers distributed by Government agencies.

[2] Revised.

TABLE 106.—*All fertilizers: Consumption, by regions and States and Territories, calendar years decennially 1880–1920 and annually 1920–53* [1]

State and region or Territory	Literature reference	1880	1890	1900	1910	1920	1921	1922	1923	1924
		Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	(196)	5,000	17,000	40,000	95,700	168,000	151,375	171,000	168,000	182,000
New Hampshire	(203)	3,000	7,500	12,270	12,800	17,000	14,000	15,000	17,000	16,000
Vermont	(34, 77, 350, 351)	4,000	8,500	15,500	18,000	20,000	15,000	16,000	17,000	17,000
Massachusetts	(75, 132, 232)	22,000	40,000	75,080	41,600	61,421	61,013	65,986	63,709	61,988
Rhode Island	(76, 209)	2,000	5,000	6,000	6,500	10,000	8,000	8,500	9,000	8,800
Connecticut	(48)	5,000	15,000	35,000	42,000	65,000	57,000	60,000	60,000	59,000
New England		41,000	93,000	183,850	216,600	341,421	306,388	336,486	334,709	344,788
New York	(181)	39,000	85,000	247,000	229,600	250,000	230,000	250,000	240,000	250,000
New Jersey [2]		30,000	39,516	66,000	125,000	164,821	163,487	178,424	157,497	152,827
Pennsylvania	(196, 197)	90,000	110,000	213,000	287,000	332,026	321,284	322,210	303,742	319,685
Delaware	(66, 103, 198)	6,000	8,000	12,000	23,000	61,735	37,472	40,344	36,931	36,224
Maryland	(131)	84,000	100,000	151,000	148,000	172,410	140,052	156,188	155,168	151,211
District of Columbia		500	700	1,000	1,000	1,000	1,000	1,000	1,000	1,000
West Virginia	(335, 338)	5,000	15,000	25,000	27,300	35,400	28,870	38,071	40,000	40,000
Middle Atlantic		254,500	358,216	715,000	840,000	1,018,292	922,165	984,237	930,338	950,947
Virginia	(80, 329)	55,000	100,000	220,000	344,951	465,247	369,490	449,942	422,350	441,895
North Carolina	(182)	65,000	140,000	276,238	630,909	1,170,440	690,544	951,114	1,066,553	1,183,053
South Carolina	(45)	86,449	126,000	292,152	975,039	1,098,487	598,893	526,599	693,386	844,440
Georgia	(64, 123)	152,464	288,112	412,755	1,022,048	1,003,053	535,638	521,547	675,867	678,959
Florida [3]		1,200	31,039	33,218	172,641	262,061	260,818	353,769	393,564	305,317
South Atlantic		360,113	685,151	1,234,363	3,145,588	3,999,288	2,485,183	2,802,971	3,256,720	3,513,664
Ohio	(185, 213)	15,000	40,000	80,000	130,000	280,000	241,000	310,885	303,120	321,287
Indiana [4]		7,000	20,000	58,000	151,856	231,791	187,923	209,310	198,581	192,417
Illinois	(82)	4,000	8,000	11,000	15,000	45,000	29,000	32,707	32,719	36,527
Michigan	(166)	5,000	6,000	15,000	38,400	112,616	83,465	86,281	83,645	94,575
Wisconsin	(69)	4,000	3,000	2,500	2,000	12,000	13,000	14,000	15,000	15,000
East North Central		35,000	86,000	175,500	337,256	881,407	554,388	653,183	633,065	659,806
Minnesota	(70)	1,000	1,000	1,000	2,000	5,000	4,000	6,000	7,000	8,000
Iowa	(87, 199)	1,000	1,000	1,000	1,200	3,500	3,000	3,500	4,000	4,500
Missouri	(114, 160, 161)	1,000	1,500	3,300	31,585	92,737	51,502	50,021	51,597	47,121
North Dakota	(134)					200	125	130	150	200
South Dakota	(236)					200	100	120	150	150
Nebraska	(173)				100	500	400	450	500	500
Kansas	(106, 107)	1,000	700	700	1,210	12,650	4,303	4,500	4,600	4,500
West North Central		4,000	4,200	6,000	36,095	114,787	63,430	64,721	67,997	64,971
Kentucky	(108, 243)	4,500	7,300	24,000	58,000	88,000	62,131	85,203	90,958	85,000
Tennessee	(259)	4,000	8,813	36,448	58,812	98,535	64,019	89,519	106,361	115,230
Alabama	(18, 19, 20)	35,000	99,818	150,000	425,000	374,880	168,239	284,370	447,913	456,840
Mississippi	(165)	6,000	28,000	93,000	132,777	131,084	61,248	142,517	208,385	206,122
East South Central		49,500	143,731	303,448	674,389	692,479	355,628	601,609	853,617	863,192
Arkansas	(24, 25, 26)	50	300	3,000	30,000	77,550	22,225	36,115	79,616	96,750
Louisiana	(115)	5,000	11,120	31,813	88,396	110,705	36,284	75,050	104,624	124,668
Oklahoma	(72, 196)			100	1,000	4,000	2,000	2,500	3,600	4,000
Texas	(62, 63, 88, 240, 241)	1,000	2,000	10,000	34,000	55,405	21,622	33,912	73,300	126,180
West South Central		6,050	13,420	44,913	153,396	247,720	82,131	147,577	261,140	351,598
Montana	(162)							500	800	1,000
Idaho	(256)					300	300	300	400	400
Wyoming										
Colorado		100	300	500	500	250	200	200	250	250
New Mexico	(121)	100	100	200	300	700	600	800	800	1,000
Arizona	(23)					500	300	320	500	500
Utah	(327)	100	200	200	200	200	300	300	400	400
Nevada						30	20	30	30	30
Mountain		300	600	900	1,000	1,980	1,420	2,450	3,180	3,580
Washington	(334)		100	400	1,000	6,000	5,000	4,000	5,000	7,000
Oregon		100	200	500	2,500	6,000	5,500	7,500	8,000	7,500
California [5]		2,000	2,500	8,000	44,923	66,380	72,629	74,886	71,819	68,274
Pacific		2,100	2,800	8,900	48,423	78,380	83,129	86,386	84,819	80,774
Continental United States		752,563	1,387,118	2,677,880	5,453,647	7,175,754	4,854,062	5,679,620	6,434,585	6,833,300
Alaska [6]					10	10				
Hawaii [7]			3,000	50,000	70,000	70,000	70,000	75,000	80,000	90,000
Puerto Rico [8]				2,000	23,000	50,000	53,000	43,260	56,789	75,670
Territories		0	3,000	52,000	93,010	120,010	123,000	118,260	136,789	165,670
Total [9]		752,563	1,390,118	2,729,880	5,546,657	7,295,764	4,977,062	5,797,880	6,571,374	6,998,970

See footnotes on p. 111.

TABLE 106.—*All fertilizers: Consumption, by regions and States and Territories, calendar years decennially 1880–1920 and annually 1920–53* [1]—Continued

State and region or Territory	Literature reference	1925	1926	1927	1928	1929	1930	1931	1932	1933
		Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	(126)	173,000	147,000	183,750	178,000	174,000	195,650	192,000	155,000	135,000
New Hampshire	(203)	16,000	14,680	16,875	16,900	16,000	12,000	10,500	9,000	8,300
Vermont	(84, 77, 850, 831)	18,000	17,000	15,663	16,911	14,905	16,069	15,031	11,767	9,520
Massachusetts	(75, 152, 232)	62,656	58,920	71,734	70,458	62,491	66,821	65,053	61,953	54,970
Rhode Island	(76, 209)	9,000	8,100	10,125	10,100	9,000	8,000	7,000	6,500	8,000
Connecticut	(48)	60,000	56,000	64,000	63,000	59,000	59,000	57,000	49,000	47,000
New England		338,656	301,700	362,147	355,369	335,396	357,340	346,594	293,220	262,790
New York	(181)	253,000	234,000	240,000	246,000	253,000	280,000	260,000	210,000	220,000
New Jersey [2]		146,656	135,141	141,635	143,574	141,981	156,445	150,800	137,651	127,515
Pennsylvania	(196, 197)	328,462	328,804	326,514	339,984	332,396	333,715	287,127	241,365	231,977
Delaware	(66, 103, 198)	41,006	43,084	41,126	40,817	41,000	43,000	36,361	33,120	28,477
Maryland	(181)	165,474	163,285	165,174	173,159	165,443	177,021	146,139	124,880	132,876
District of Columbia		1,000	1,000	1,000	1,000	1,000	1,000	1,000	800	700
West Virginia	(855, 856)	41,000	38,000	42,500	40,700	47,000	44,000	40,000	34,000	37,000
Middle Atlantic		976,028	943,414	957,949	994,234	981,820	1,035,181	921,427	782,316	778,545
Virginia	(60, 329)	431,656	435,223	408,008	437,709	429,886	449,178	379,260	279,804	307,589
North Carolina	(182)	1,217,822	1,218,176	1,171,499	1,319,360	1,293,572	1,242,036	1,003,405	696,167	889,310
South Carolina	(46)	873,255	840,128	726,736	788,293	760,069	749,230	598,896	446,027	581,515
Georgia	(64, 123)	778,808	780,302	713,047	883,274	868,911	928,606	686,191	357,352	416,283
Florida [3]		358,463	398,480	417,438	468,907	427,224	488,624	418,787	381,178	352,897
South Atlantic		3,680,004	3,672,309	3,436,728	3,927,543	3,779,662	3,857,674	3,086,519	2,160,528	2,547,594
Ohio	(185, 213)	321,000	304,480	312,703	320,866	338,662	327,179	249,305	169,239	208,869
Indiana [4]		226,148	228,280	240,498	221,052	250,201	224,055	166,005	80,384	99,755
Illinois	(82)	43,582	43,727	46,000	55,500	68,056	65,818	46,960	21,330	23,392
Michigan	(156)	109,327	105,014	117,227	159,213	152,812	145,000	105,580	82,400	81,000
Wisconsin	(69)	12,500	16,000	22,520	33,041	40,671	51,222	45,010	26,513	16,311
East North Central		713,517	697,501	738,948	789,711	850,402	813,274	613,469	379,875	429,327
Minnesota	(70)	9,000	11,316	11,387	14,211	13,024	16,254	17,698	9,320	7,257
Iowa	(87, 199)	6,000	6,021	7,181	10,000	17,000	24,597	22,000	10,000	5,000
Missouri	(114, 160, 161)	63,939	56,891	56,100	64,922	58,892	50,810	48,944	26,427	32,422
North Dakota	(184)	225	250	398	450	550	1,545	1,000	400	200
South Dakota	(236)	150	150	200	220	250	200	150	70	50
Nebraska	(178)	500	250	398	600	700	1,000	500	200	200
Kansas	(106, 107)	4,138	7,746	7,800	9,162	9,943	6,355	2,983	2,518	1,735
West North Central		83,952	82,621	83,484	99,565	100,359	109,764	93,275	48,963	46,864
Kentucky	(108, 243)	93,000	91,500	70,500	90,500	93,000	113,992	105,192	55,220	58,272
Tennessee	(230)	142,174	156,336	112,493	150,726	142,745	163,909	119,156	62,956	76,827
Alabama	(18, 19, 20)	598,115	615,364	478,400	681,000	675,450	641,350	419,950	205,400	287,350
Mississippi	(158)	258,028	278,075	218,750	333,350	327,806	403,718	197,386	84,526	104,191
East South Central		1,091,317	1,141,275	880,143	1,255,576	1,239,001	1,325,969	841,684	408,102	526,640
Arkansas	(24, 26, 26)	123,387	126,175	75,487	126,391	156,582	157,681	62,096	17,348	22,140
Louisiana	(115)	110,781	114,347	92,866	143,693	174,278	175,360	94,359	49,376	61,514
Oklahoma	(72, 180)	5,000	5,418	4,263	8,203	9,422	6,613	7,089	2,025	1,985
Texas	(62, 63, 68, 240, 241)	97,720	121,747	80,521	144,643	192,133	145,218	64,582	34,195	33,571
West South Central		336,891	367,687	253,137	422,930	532,415	485,075	228,126	103,834	119,210
Montana	(162)	1,200	1,500	1,500	1,600	1,400	1,250	1,100	500	1,000
Idaho	(236)	400	420	450	500	550	2,100	1,000	1,500	2,000
Wyoming		100	150	200	300	600	350	700	850	700
Colorado		300	337	607	728	800	1,200	3,875	1,700	1,000
New Mexico	(121)	1,200	1,366	1,256	1,400	1,500	1,787	1,015	541	952
Arizona	(23)	500	500	700	1,000	1,200	4,000	2,100	2,000	1,500
Utah	(227)	500	500	500	500	550	800	4,000	2,000	1,000
Nevada		30	30	30	30	30	90	200	300	400
Mountain		4,230	5,003	5,243	6,058	6,630	11,577	14,029	9,391	8,552
Washington	(354)	10,000	12,207	14,244	15,000	16,000	21,000	17,500	11,000	12,000
Oregon		8,000	8,000	9,000	10,000	10,000	12,000	11,000	10,000	9,000
California [5]		85,933	93,845	102,524	121,183	130,477	142,489	132,340	128,020	131,178
Pacific		103,933	114,052	125,768	146,683	156,477	175,489	160,840	149,020	152,178
Continental United States		7,329,128	7,325,565	6,843,527	7,988,869	7,982,102	8,171,343	6,305,963	4,336,249	4,871,709
Alaska [6]		21	40	49	62	55	50	75	70	66
Hawaii [7]		105,403	125,857	137,624	131,804	131,457	132,553	136,763	121,086	143,105
Puerto Rico [8]		68,031	79,575	93,096	91,455	93,901	101,270	98,413	87,888	95,356
Territories		173,455	205,472	230,769	220,321	225,503	253,873	235,251	209,030	238,527
Total [9]		7,502,583	7,531,037	7,074,296	8,214,990	8,207,605	8,425,216	6,541,214	4,545,279	5,110,236

See footnotes on p. 111.

TABLE 106.—*All fertilizers: Consumption, by regions and States and Territories, calendar years decennially 1880–1920 and annually 1920–53* [1]—Continued

State and region or Territory	Literature reference	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943
		Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	(126)	130,000	130,000	140,000	142,000	136,428	139,408	147,520	173,618	193,442	233,861
New Hampshire	(203)	13,000	15,000	16,500	14,060	12,779	14,114	17,836	30,693	37,472	25,947
Vermont	(34, 77, 330, 331)	13,087	15,295	16,421	25,280	25,242	34,948	28,742	75,040	42,202	36,191
Massachusetts	(76, 182, 232)	60,504	63,208	64,481	74,274	69,175	65,759	69,104	79,922	81,878	87,330
Rhode Island	(78, 209)	11,553	10,000	10,000	11,000	10,000	11,206	11,843	14,599	14,448	16,166
Connecticut	(48)	48,373	51,007	52,897	67,236	56,553	59,789	62,768	70,015	70,951	81,847
New England		276,517	284,510	300,299	333,830	310,177	325,224	337,873	443,878	430,391	481,642
New York	(181)	226,000	285,000	330,000	350,000	332,931	324,280	397,718	469,698	485,575	484,316
New Jersey [2]		138,060	149,408	160,741	183,952	171,722	176,170	183,567	184,391	212,078	223,542
Pennsylvania	(196, 197)	267,987	295,048	318,330	370,162	358,715	374,481	395,305	391,986	409,859	424,890
Delaware	(56, 103, 198)	35,700	37,300	39,000	44,486	36,281	35,500	35,506	34,529	37,273	44,768
Maryland	(131)	146,439	164,843	164,317	187,385	168,152	164,679	161,143	173,205	185,400	209,200
District of Columbia		800	1,000	1,400	1,600	1,700	1,800	1,800	2,000	2,000	1,700
West Virginia	(356, 336)	45,000	46,000	45,256	53,169	57,780	54,070	71,785	77,457	91,405	68,769
Middle Atlantic		859,986	979,099	1,059,544	1,191,234	1,127,281	1,130,980	1,216,824	1,333,266	1,423,590	1,457,116
Virginia	(80, 329)	336,015	379,242	392,388	446,288	411,704	437,804	427,132	458,259	445,042	524,932
North Carolina	(182)	876,874	1,000,585	1,043,111	1,153,146	1,079 191	1,221,309	1,091,159	1,175,900	1,277,978	1,390,960
South Carolina	(46)	572,270	613,561	626,900	771,218	661,163	672,920	685,852	73',678	703,557	845,297
Georgia	(64, 185)	540,275	618,069	686,798	867,860	769,481	691,199	782,739	833,776	927,165	1,110,902
Florida [3]		423,032	400,239	492,577	544,082	526,067	520,056	532,808	618,227	608,185	749,923
South Atlantic		2,757,475	3,011,696	3,241,680	3,782,594	3,447,666	3,543,188	3,519,690	3,820,840	3,961,927	4,622,014
Ohio	(185, 218)	263,773	306,509	337,146	362,205	324,492	346,224	366,211	409,968	448,902	527,683
Indiana [4]		140,526	190,067	245,537	226,887	220,957	201,644	257,658	281,342	334,415	397,761
Illinois	(82)	28,977	38,827	56,308	76,076	81,387	91,576	98,301	144,282	208,878	288,549
Michigan	(156)	82,476	111,288	125,693	144,500	132,702	144,811	166,564	190,025	259,495	245,229
Wisconsin	(69)	19,569	28,414	32,184	42,872	46,460	42,682	70,521	89,204	204,128	183,685
East North Central		535,421	675,105	796,868	852,540	806,008	826,967	959,255	1,114,821	1,453,818	1,642,904
Minnesota	(70)	9,165	10,776	9,899	12,386	13,773	13,455	19,421	32,458	49,017	56,431
Iowa	(87, 199)	3,000	5,000	6,403	8,857	11,507	13,415	15,643	23,080	45,835	62,856
Missouri	(114, 160, 161)	52,259	59,398	93,588	82,549	70,518	68,107	92,041	98,600	108,834	142,411
North Dakota	(184)	300	300	350	400	600	1,000	1,800	2,100	2,100	3,036
South Dakota	(256)	100	100	100	150	100	300	500	500	500	545
Nebraska	(178)	900	800	700	1,500	1,794	2,090	2,200	1,800	2,400	2,009
Kansas	(106, 107)	5,490	7,298	11,170	15,267	13,828	14,445	18,000	22,395	27,187	34,868
West North Central		71,223	83,672	122,210	121,109	112,126	112,812	150,505	178,923	235,573	302,150
Kentucky	(108, 243)	52,520	73,502	90,419	136,624	144,365	158,933	272,948	300,839	331,929	272,819
Tennessee	(239)	84,453	96,636	128,216	153,572	142,643	153,647	211 743	235,670	285,158	314,046
Alabama	(18, 19, 20)	366,284	422,400	469,852	631,742	534,631	555,541	616,808	614,557	691,930	749,320
Mississippi	(155)	162,007	214,095	241,152	302,011	265,170	287,071	323,404	377,011	404,684	521,642
East South Central		675,324	806,633	929,639	1,223,949	1,086,809	1,155,192	1,424,903	1,528,077	1,713,711	1,857,827
Arkansas	(24, 25, 26)	45,548	39,630	48,931	68,711	68,363	76,257	117,130	141,086	136,494	174,810
Louisiana	(115)	80,945	92,532	117,106	157,530	148,601	160,632	157 582	188,289	182,060	205,871
Oklahoma	(72, 186)	4,990	6,619	6,055	7,924	8,086	7 749	7,679	13,142	14,991	15,136
Texas	(62, 63, 88, 240, 241)	47,204	61,802	65,689	89,790	79,735	93,516	118,967	146,53F	148,832	199,123
West South Central		178,687	200,583	237,781	323,955	304,785	338,154	401,358	487,055	482,067	594,940
Montana	(162)	2,340	3,000	3,770	4,000	4,000	5,000	4,500	4,500	5,000	5,854
Idaho	(235)	2,000	3,000	3,000	6,500	9,015	6,500	7,000	8,758	10,510	16,050
Wyoming		1,640	1,308	1,300	1,800	2,200	2,033	2,100	1,700	2,000	1,801
Colorado		1,914	1,200	2,000	3,500	4,393	4,578	5,557	6,256	8,264	8,139
New Mexico	(121)	1,221	1,036	2,667	3,213	2,240	2,243	2,904	4,018	4,172	4,794
Arizona	(25)	2,000	3,393	4,000	10,000	6,500	7,013	7,082	10,552	10,726	19,096
Utah	(327)	1,200	1,000	2,000	2,300	2,000	2,300	3,050	6,000	5,014	5,552
Nevada		500	300	400	500	500	500	500	500	600	236
Mountain		12,815	14,837	19,137	31,813	30,848	30,167	32,693	42,314	45,836	61,522
Washington	(334)	14,000	21,100	23,300	23,000	20,000	25,425	48,867	47,743	48,374	51,753
Oregon		9,000	12,000	14,300	17,000	15,000	19,444	24,654	30,937	25,041	37,481
California [5]		150,271	185,801	210,939	238,015	210,765	220,431	218,964	268,086	304,585	406,879
Pacific		179,271	218,901	248,539	278,015	245,795	265,300	292,485	346,766	378,000	496,113
Continental United States		5,546,710	6,275,036	6,955,097	8,139,044	7,471,394	7,727,954	8,335,646	9,295,940	10,124,913	11,516,228
Alaska [6]	[7]	101	105	122	284	253	168	144	152	236	308
Hawaii [7]		126,511	148,607	120,044	123,000	122,000	118,000	118,360	126,387	114,522	91,550
Puerto Rico [8]		120,809	110,125	146,302	170,913	164,429	147,302	202,128	184,043	91,519	126,005
Territories		247,421	258,837	266,468	294,197	286,682	265,470	320,632	310,582	206,277	217,861
Total [9]		5,794,140	6,533,873	7,222,105	8,433,241	7,758,076	7,993,424	8,656,278	9,606,522	10,331,190	11,734,089

See footnotes on p. 111.

TABLE 106.—*All fertilizers: Consumption, by regions and States and Territories, calendar years decennially 1880–1920 and annually 1920–53* [1]—Continued

State and region or Territory	Literature reference	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
		Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	(126)	225,719	241,615	266,992	262,610	245,246	238,106	199,148	171,190	214,097	203,054
New Hampshire	(203)	28,081	29,372	27,764	28,392	26,950	27,273	28,154	23,951	20,349	20,875
Vermont	(34, 77, 330, 331)	54,476	50,357	44,663	43,421	48,155	78,039	51,819	68,435	54,336	40,161
Massachusetts	(75, 152, 232)	102,762	92,791	88,762	83,916	83,851	90,021	94,237	93,800	91,737	85,228
Rhode Island	(76, 209)	16,784	17,559	18,863	16,581	18,578	19,633	18,231	17,692	16,554	16,088
Connecticut	(48)	91,107	90,987	82,412	78,568	86,698	91,871	95,180	90,037	84,261	88,624
New England		519,929	522,681	529,456	513,488	509,478	544,943	486,789	461,105	481,334	454,030
New York	(181)	543,358	555,844	564,191	583,011	549,536	600,446	623,008	626,756	664,808	625,623
New Jersey [2]		257,277	247,248	264,563	247,458	256,255	259,749	248,998	257,430	275,122	271,220
Pennsylvania	(196, 197)	494,532	485,824	548,834	550,651	556,129	599,580	628,824	644,508	656,886	685,938
Delaware	(56, 103, 198)	47,482	47,109	55,444	53,601	52,536	55,594	58,007	68,326	80,447	38,227
Maryland	(131)	222,723	216,894	244,895	255,806	233,426	246,526	254,221	275,236	294,583	298,655
District of Columbia		1,616	1,292	1,904	2,584	1,658	1,958	2,097	2,263	2,730	2,850
West Virginia	(355, 336)	70,665	72,103	96,410	97,849	86,845	102,092	104,833	103,375	96,475	34,514
Middle Atlantic		1,637,651	1,628,314	1,776,241	1,790,518	1,736,385	1,865,955	1,919,988	1,977,894	2,071,055	2,057,027
Virginia	(80, 329)	581,733	624,538	671,815	678,573	653,565	702,110	781,515	819,288	860,400	822,771
North Carolina	(162)	1,412,212	1,489,701	1,707,430	1,742,508	1,656,340	1,769,123	1,857,351	1,827,591	1,910,079	1,864,531
South Carolina	(45)	801,840	788,806	880,466	887,588	874,731	949,268	953,264	925,155	975,318	948,889
Georgia	(64, 123)	1,100,814	1,035,794	1,186,687	1,273,139	1,239,115	1,266,017	1,231,593	1,307,864	1,349,701	1,318,374
Florida [2]		799,942	820,934	950,697	774,023	672,045	810,642	925,308	1,054,260	1,116,425	1,156,828
South Atlantic		4,702,541	4,760,773	5,391,095	5,355,831	5,095,796	5,497,160	5,749,031	5,934,158	6,211,923	6,111,393
Ohio	(187, 313)	617,722	630,470	748,483	790,387	889,894	898,165	927,279	948,748	1,111,976	1,104,895
Indiana [2]		470,597	526,236	642,638	702,139	836,566	750,351	877,483	932,988	1,097,920	1,176,848
Illinois	(32)	410,651	650,474	696,410	1,036,938	1,030,845	881,205	1,015,043	1,240,964	1,506,571	1,558,424
Michigan	(156)	314,502	341,693	392,100	411,774	420,314	448,783	507,100	533,792	605,717	606,919
Wisconsin	(69)	243,526	263,376	315,470	364,633	429,918	342,237	413,796	409,171	375,807	428,405
East North Central		2,056,998	2,420,648	2,789,101	3,307,871	3,607,537	3,320,741	3,740,701	4,065,663	4,697,991	4,875,491
Minnesota	(70)	95,460	124,835	158,338	178,302	235,942	200,195	234,935	208,123	216,573	288,747
Iowa	(87, 199)	99,370	170,846	215,791	262,407	314,276	309,299	359,748	426,854	410,746	607,864
Missouri	(114, 160, 161)	193,134	172,122	249,581	302,603	357,496	365,973	482,464	648,093	843,064	763,351
North Dakota	(184)	5,256	7,501	12,354	27,425	25,377	15,903	17,679	18,859	34,586	46,063
South Dakota	(236)	341	740	3,945	8,204	8,756	7,402	6,608	10,057	10,686	20,771
Nebraska	(178)	2,194	3,445	10,305	18,172	28,380	32,472	53,820	80,613	105,817	159,082
Kansas	(106, 107)	56,412	40,251	55,192	93,972	104,932	139,356	175,389	177,899	260,261	204,404
West North Central		452,177	520,040	705,506	891,175	1,075,159	1,070,605	1,330,643	1,570,498	1,888,733	2,090,282
Kentucky	(108, 243)	325,858	347,807	373,626	415,589	471,752	521,396	578,182	572,361	629,293	567,285
Tennessee	(239)	355,799	369,448	433,207	460,207	468,181	472,541	534,805	545,131	612,528	545,116
Alabama	(18, 19, 20)	869,314	837,462	901,052	1,004,118	1,069,711	1,157,260	1,237,559	1,299,016	1,299,192	1,170,105
Mississippi	(158)	466,704	492,473	601,273	651,648	710,201	648,420	746,621	739,737	814,590	684,730
East South Central		2,016,675	2,047,190	2,310,058	2,531,662	2,719,845	2,799,617	3,097,167	3,156,245	3,355,593	2,967,236
Arkansas	(24, 25, 26)	192,435	141,221	209,574	238,215	250,150	279,505	343,454	363,905	374,398	349,357
Louisiana	(115)	222,798	228,432	258,925	263,966	265,416	239,275	293,586	323,739	336,862	305,442
Oklahoma	(72, 180)	26,054	25,606	46,887	68,499	90,500	117,747	141,007	153,580	181,473	148,954
Texas	(62, 63, 88, 240, 241)	215,204	278,372	362,242	439,106	460,439	517,789	598,406	575,179	591,345	553,550
West South Central		657,391	674,631	877,628	1,009,786	1,066,505	1,154,316	1,376,453	1,416,703	1,484,078	1,357,303
Montana	(165)	8,350	8,329	11,512	11,236	12,057	9,125	15,393	22,881	21,985	31,453
Idaho	(256)	35,532	40,800	59,140	58,678	53,972	43,215	51,758	49,729	74,462	89,102
Wyoming		3,603	4,297	5,521	5,232	7,457	4,069	6,701	6,209	7,260	12,852
Colorado		11,982	20,403	26,604	27,322	33,118	35,757	43,250	45,341	51,159	50,015
New Mexico	(121)	9,674	12,100	11,064	12,332	13,374	16,031	18,200	21,466	22,924	23,935
Arizona	(23)	34,610	38,815	44,751	73,211	72,159	48,760	75,976	116,219	106,971	136,801
Utah	(327)	12,629	8,806	14,988	19,051	14,481	12,646	25,097	26,268	26,533	33,810
Nevada		333	467	523	755	1,072	842	1,814	4,234	7,029	11,027
Mountain		116,722	134,017	174,103	207,815	207,720	169,045	239,089	292,347	318,323	388,965
Washington	(334)	68,858	81,068	111,766	91,706	76,656	78,823	123,972	88,087	102,847	146,978
Oregon		51,793	53,165	95,234	94,055	77,554	75,310	86,340	113,638	134,294	139,497
California [2]		763,852	970,526	1,118,997	1,263,015	1,054,792	1,024,541	1,165,941	1,533,754	1,698,868	1,659,937
Pacific		884,503	1,104,759	1,325,997	1,448,776	1,209,002	1,178,674	1,376,253	1,735,479	1,936,109	1,945,412
Continental United States		13,044,587	13,813,053	15,879,185	17,056,922	17,227,527	17,601,056	19,316,394	20,610,092	22,443,139	22,247,139
Alaska [2]		250	220	330	466	591	1,006	1,000	517	552	653
Hawaii [2]		81,890	116,976	82,739	101,510	104,872	108,639	120,001	122,325	120,513	132,658
Puerto Rico [2]		203,994	197,769	204,127	238,871	263,387	217,686	322,775	323,372	233,103	250,228
Territories		286,134	[illegible],965	287,196	340,877	368,850	327,331	443,776	446,214	354,268	383,539
Total [3]		13,330,721	14,128,018	16,166,381	17,397,799	17,596,377	17,928,387	19,760,170	21,056,306	22,797,407	22,630,678

See footnotes on p. 111.

FOOTNOTES FOR TABLE 106:

[1] The data for 1880 were estimated on the basis of the survey made by the National Fertilizer Association (*168*) for the year ended April 30, 1882, and the amounts reported by farmers of each State as spent for fertilizers in the "Census of Agriculture" (*277*) for 1880. The National Fertilizer Association also published the results of surveys for years ended April 30, 1883–87; the only copies of these reports known to the authors are located in the Congressional Library, the U. S. Department of Agriculture Library, and the library of Rutgers University. Except as otherwise noted, the 1890 and 1900 figures are estimated from the surveys by Holmes (*78*) for the years 1891 to 1897 and the "Census of Agriculture" for 1890 and 1900 (*277*). Those for 1910 to 1940 are based on reports by the National Fertilizer Association (*9, 169*) and Willett (*359*) supplemented by addition of data for the Territories, the District of Columbia, and fertilizers distributed by government agencies, as well as consumption of secondary and trace-nutrient fertilizers, gypsum, and phosphate rock for direct application, together with changes to reflect additional information. The 1941–53 data are based on Branch surveys. Further information is given in the following footnotes and in the literature referred to in the table.

[2] For consumption in New Jersey for 1882 and annually from 1884 to 1921 see Cathcart (*41*). Tonnages of materials and mixtures by spring and fall seasons for 10-year periods are given by Cathcart (*42, 43*). Randle (*205*) gives similar data for the period ending with 1946 and much more detail for each year thereafter. The 1942 tonnage in this table is taken from the New Jersey report (*179*).

[3] Data for 1935 to 1940 have been corrected for the tonnages of limestone, that were included in the figures as originally published. Statistics on fertilizer consumption on a county basis have been reported monthly beginning July 1939 (*61*).

[4] Indiana Agricultural Experiment Station (*83, 84*)—annual sales of fertilizers in Indiana for the period 1883–1921 are given in Bulletin 262.

[5] California Department of Agriculture (*38, 39, 40*). The figures for years up to and including 1940 are the tonnages as published. 1940–42, tonnages of phosphate rock have been added to those reported by California. 1943–53, Division surveys which include dried manures, gypsum, sulfur, zinc sulfate, sewage sludge, borax, manganese sulfate, and similar substances, except liming materials, reported as sold by the fertilizer industry, but such materials are legally not fertilizers in California.

[6] These data are only shipments from the States. 1953 tonnage is for spring season only; data for the fall season is unavailable.

[7] 1890–1924, estimated from shipping records; 1925–53, based on Branch surveys.

[8] 1900–21, estimated from imports plus shipments from mainland. The data for 1922–42 are for years ended June 30, as reported by Puerto Rico Department of Agriculture and Commerce (*204*); does not include the consumption of separate materials directly as fertilizer for 1922–33. 1943–53, based on Branch surveys.

[9] Data for the years ended June 30, 1934, 1939, 1943, and 1945–53 are given in the Branch surveys. Total consumption for certain States in the Branch survey for the calendar year 1941 were tonnage reports of actual sales, whereas, in this table they are from tax tag sales. Mehring (*137*) gives additional information on the consumption in the North Central States for the years 1930–46.

TABLE 107.—*All fertilizers: Consumption and primary-nutrient content, by regions and States and Territories, years ended June 30, 1934, 1939, 1945, 1950, and 1954* [1]

State and region or Territory	1934				1939 [2]				1945 [2]		
	Fertilizer	Nitrogen	Available phosphoric oxide	Potash	Fertilizer	Nitrogen	Available phosphoric oxide	Potash	Fertilizer	Nitrogen	Available phosphoric oxide
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Maine	[3] 133,070	[3] 7,119	[3] 12,522	[3] 15,037	132,500	7,715	14,416	16,794	234,581	14,560	23,922
New Hampshire	14,210	716	1,306	885	14,500	749	1,627	1,067	28,520	1,170	3,850
Vermont	13,000	574	1,412	766	12,664	518	1,751	922	37,648	1,012	6,225
Massachusetts	60,699	3,343	5,331	3,806	63,974	3,542	7,928	4,118	89,257	4,662	8,692
Rhode Island	11,553	585	1,046	723	11,000	595	1,094	762	17,612	871	2,022
Connecticut	50,000	2,683	4,149	3,117	59,000	3,250	4,765	3,761	85,644	4,623	7,080
New England	[3] 282,532	[3] 15,018	[3] 25,766	[3] 24,134	293,638	18,369	31,581	27,424	493,262	26,898	50,891
New York	[3] 225,000	[3] 9,051	[3] 23,848	[3] 11,616	323,950	10,214	45,455	14,254	331,929	21,353	70,168
New Jersey	130,000	5,867	11,310	8,733	176,170	7,793	16,525	13,196	249,391	11,566	27,946
Pennsylvania	260,000	6,454	28,726	12,797	356,853	8,348	45,219	17,666	498,170	14,882	68,601
Delaware	30,000	679	2,861	1,770	35,500	1,277	3,312	2,776	49,350	1,585	5,760
District of Columbia	[3] 800	40	90	30	1,800	83	198	70	[3] 1,462	[3] 78	[3] 153
Maryland	[3] 139,300	4,900	12,257	8,958	164,585	4,912	16,752	11,337	221,654	7,972	26,989
West Virginia	48,288	1,274	6,380	[3] 3,133	56,500	1,245	7,815	2,418	67,317	1,773	10,097
Middle Atlantic	[3] 833,288	[3] 28,265	[3] 85,602	[3] 47,037	1,115,388	33,872	135,276	61,717	[3] 1,622,279	[3] 59,209	[3] 209,714
Virginia	324,010	10,955	31,095	10,180	418,973	15,903	37,963	17,230	589,407	21,102	68,312
North Carolina	872,072	37,760	68,201	30,800	1,107,347	48,531	84,918	52,430	1,475,260	71,997	123,116
South Carolina	590,036	26,884	45,559	21,798	672,753	36,284	44,782	32,227	779,852	48,470	61,691
Georgia	582,651	23,597	46,257	21,046	736,179	38,021	58,414	33,549	1,002,765	52,549	86,366
Florida	399,644	22,105	28,289	25,931	556,782	21,783	35,426	33,192	795,349	37,102	53,811
South Atlantic	2,749,013	121,101	219,491	109,755	3,492,034	163,525	261,503	168,628	4,652,639	231,220	393,596
Ohio	224,403	4,047	32,037	8,590	345,585	8,216	45,518	20,302	640,266	17,217	82,440
Indiana	131,881	2,214	17,546	9,116	201,420	3,509	25,920	15,852	360,240	9,139	60,087
Illinois	19,317	755	2,428	1,114	91,493	1,164	5,866	3,634	480,798	4,703	34,239
Michigan	90,000	2,254	11,576	5,399	144,511	3,563	18,736	10,697	311,310	8,035	40,224
Wisconsin	19,844	729	2,408	1,896	42,623	1,053	5,696	3,991	237,674	7,263	30,622
East North Central	485,475	9,999	65,995	25,015	825,932	17,505	101,736	54,476	2,176,288	46,757	247,612
Minnesota	9,262	176	1,255	1,247	13,455	355	2,089	1,369	93,444	1,590	16,434
Iowa	5,000	58	711	403	13,019	203	1,860	728	142,576	1,337	23,240
Missouri	41,011	723	6,595	704	67,733	1,053	10,743	1,722	166,752	2,373	27,507
North Dakota	298	1	63	2	1,000	6	343	10	6,812	88	1,492
South Dakota	10	2	1	1	300	1	130	1	556	6	98
Nebraska	81	13	3	2	2,090	17	824	10	3,454	328	918
Kansas	2,500	44	386	29	14,365	174	3,334	150	46,641	243	11,135
West North Central	58,165	1,017	9,017	2,388	111,962	1,819	18,933	3,930	462,265	5,575	80,824
Kentucky	61,818	1,395	8,407	1,783	111,201	2,080	17,123	3,233	317,472	7,858	45,543
Tennessee	89,269	1,860	10,091	2,807	136,365	3,690	15,003	4,808	341,814	11,020	45,473
Alabama	366,916	20,218	31,072	15,017	531,000	33,174	40,502	20,523	812,878	46,260	78,038
Mississippi	169,020	11,851	12,536	5,040	285,667	27,722	16,541	10,472	497,011	47,359	34,682
East South Central	687,023	35,324	62,106	24,647	1,064,233	66,666	89,169	39,036	1,968,975	113,136	203,736
Arkansas	11,775	1,981	4,049	2,034	71,138	4,805	4,236	3,624	151,507	9,689	15,249
Louisiana	78,712	6,775	6,330	2,045	140,385	11,786	10,074	4,563	211,356	18,438	16,775
Oklahoma	3,738	139	392	203	4,485	172	450	200	22,581	327	2,847
Texas	47,536	2,222	5,300	1,930	93,113	4,834	10,317	3,455	234,366	12,763	26,964
West South Central	171,761	11,117	16,161	6,192	309,123	21,597	25,077	11,842	619,810	41,417	61,835
Montana	200	4	78		5,000		2,250		9,243	210	3,625
Idaho	500	30	148	8	5,373	3	2,381	1	44,512	1,336	9,325
Wyoming	300	10	113		2,033		915		3,889	8	1,241
Colorado	800	87	77	17	4,578	108	1,345	92	16,691	278	4,781
New Mexico	1,000	8	204		2,243	6	794	2	12,913	64	3,067
Arizona	800	56	100	1	7,013	743	1,152	21	35,479	2,307	3,316
Utah	500	21	114	10	2,300		1,035		12,650	374	3,277
Nevada	500	21	54	18	500	1	216	2	453	39	88
Mountain	4,600	240	888	54	29,040	921	10,088	118	135,830	4,706	28,730
Washington	13,000	1,133	1,270	731	23,750	1,169	1,353	1,317	76,407	5,245	10,944
Oregon	9,000	572	1,026	565	12,750	742	2,719	351	50,104	3,613	7,050
California	159,530	17,602	10,906	4,016	215,867	27,174	11,773	6,621	913,535	58,243	42,480
Pacific	183,530	19,307	13,208	5,312	252,167	29,085	22,045	8,289	1,076,106	67,101	60,504
Continental United States	[3] 5,455,987	[3] 241,388	[3] 498,131	[3] 245,434	7,493,517	351,359	695,808	375,460	[3] 13,201,454	[3] 595,319	[3] 1,337,442
Hawaii	[3] 130,000	[3] 11,000	[3] 11,100	[3] 3,000	[3] 121,000	[3] 17,280	[3] 7,080	[3] 11,400	90,550	14,269	5,321
Puerto Rico	120,800	14,303	7,804	9,867	123,699	15,785	6,909	12,788	174,150	20,697	10,264
Alaska	[3] 100	[3] 6	[3] 10	[3] 10	[3] 200	12	[3] 40	[3] 20	[3] 220	[3] 13	[3] 47
Territories	[3] 250,900	[3] 25,309	[3] 18,922	[3] 13,174	[3] 244,299	[3] 33,077	[3] 14,029	[3] 23,608	[3] 264,920	[3] 34,979	[3] 15,632
Total	[3] 5,706,890	[3] 269,697	[3] 515,056	[3] 258,908	[3] 7,737,816	[3] 384,436	[3] 709,897	[3] 399,068	[3] 13,466,374	[3] 630,298	[3] 1,353,074

See footnotes at end of table, p. 113.

TABLE 107.—*All fertilizers: Consumption and primary-nutrient content, by regions and States and Territories, years ended June 30, 1934, 1939, 1945, 1950, and 1954* [1]—Continued

State and region or Territory	1945—Continued	1950 [2]				1954 [3]				
	Potash	Fertilizer	Nitrogen	Phosphoric oxide		Potash	Fertilizer	Nitrogen	Phosphoric oxide		Potash
				Available	Total				Available	Total	
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	30,026	213,417	12,118	24,408	25,159	24,508	171,782	11,620	18,471	19,305	20,435
New Hampshire	1,798	28,016	788	4,302	4,575	2,260	15,812	1,021	1,873	1,987	1,604
Vermont	1,886	62,856	1,088	11,116	11,533	4,873	38,441	1,414	5,740	6,054	5,089
Massachusetts	5,887	89,202	4,326	9,195	9,817	6,670	85,018	5,189	7,605	8,003	6,881
Rhode Island	1,378	17,092	816	1,941	2,025	1,027	15,466	889	1,468	1,564	1,410
Connecticut	5,487	93,915	4,502	8,017	8,579	6,524	90,236	5,110	7,394	7,863	7,552
New England	47,082	505,398	23,838	59,069	61,688	46,462	416,755	25,243	42,551	44,776	42,971
New York	29,714	608,545	23,013	81,888	85,383	34,053	609,445	37,290	69,190	72,505	47,411
New Jersey	20,792	237,750	11,115	25,169	26,084	20,844	291,008	16,745	29,330	31,136	27,573
Pennsylvania	30,825	632,060	20,611	83,820	88,842	41,332	680,947	32,046	81,258	86,554	63,357
Delaware	4,220	57,507	2,131	6,657	7,028	4,770	91,881	5,800	10,081	10,541	10,219
District of Columbia	[4] 69	1,904	109	172	180	133	2,698	154	252	268	129
Maryland	15,672	251,747	8,921	30,236	32,071	17,474	312,343	14,812	34,526	37,108	28,491
West Virginia	2,717	104,148	2,265	17,542	18,553	4,457	77,183	3,452	9,372	10,244	6,359
Middle Atlantic	[4] 103,809	1,893,721	69,065	245,504	258,147	123,063	2,068,705	110,299	234,015	248,506	183,541
Virginia	29,341	728,304	26,522	83,391	88,260	45,667	799,063	37,246	78,147	84,335	71,076
North Carolina	79,219	1,740,348	93,873	149,461	160,493	110,100	1,849,199	115,540	146,514	158,331	133,517
South Carolina	44,667	874,528	52,770	75,744	81,358	56,793	941,121	68,063	71,684	77,210	68,673
Georgia	49,870	1,188,036	60,117	99,998	107,781	60,937	1,369,034	88,500	110,421	119,377	106,374
Florida	50,312	877,055	42,110	61,899	71,780	62,732	1,184,681	72,875	84,869	101,331	82,530
South Atlantic	239,409	5,409,171	275,392	470,493	509,672	330,529	6,143,098	382,224	491,635	543,587	463,076
Ohio	46,190	906,631	27,622	115,358	124,570	80,383	1,094,168	53,323	135,607	147,766	130,873
Indiana	46,265	798,467	26,365	97,290	113,772	81,408	1,180,728	74,504	148,071	165,002	162,423
Illinois	18,038	870,558	16,278	64,620	108,500	40,584	1,506,147	82,166	124,109	293,239	151,955
Michigan	24,693	474,485	13,477	66,403	71,878	42,198	600,392	30,831	79,505	85,359	76,464
Wisconsin	21,981	384,032	10,767	52,811	59,240	44,967	441,203	19,736	59,755	67,088	71,803
East North Central	157,167	3,434,174	94,509	396,482	567,960	298,540	4,822,638	260,560	547,047	758,454	593,518
Minnesota	6,082	217,996	5,853	46,198	49,377	18,981	322,775	24,202	64,881	69,089	37,556
Iowa	7,517	332,661	13,755	52,998	63,998	15,059	652,158	76,119	102,398	112,932	45,525
Missouri	6,761	407,710	18,686	49,426	74,253	23,170	756,620	72,523	80,929	132,382	64,226
North Dakota	379	18,671	604	5,116	5,304	1,205	47,677	2,924	16,541	17,185	1,275
South Dakota	22	5,496	335	1,033	1,159	35	30,007	4,311	6,579	6,956	217
Nebraska	4	43,667	8,578	5,286	5,676	193	199,116	52,696	25,172	27,009	1,698
Kansas	466	160,215	11,891	32,575	40,944	1,324	215,889	33,202	41,890	45,752	3,979
West North Central	21,231	1,186,416	59,802	192,630	240,801	59,967	2,224,242	266,037	338,390	411,305	154,476
Kentucky	11,638	554,090	20,566	72,085	86,276	30,497	581,563	31,908	66,589	74,329	57,961
Tennessee	13,254	506,338	25,963	61,033	66,776	26,170	524,094	38,744	55,654	59,887	46,086
Alabama	30,964	1,139,773	39,236	108,177	120,417	53,515	1,183,404	80,634	101,709	110,923	70,285
Mississippi	14,993	640,607	87,112	47,226	52,691	24,996	734,728	112,299	48,570	53,888	39,536
East South Central	70,849	2,840,808	192,877	288,541	326,160	135,208	3,023,809	263,585	272,522	299,027	213,868
Arkansas	9,892	318,640	33,728	30,866	31,762	20,485	370,677	52,102	27,510	29,657	41,045
Louisiana	6,215	274,390	29,353	21,282	27,370	12,434	318,166	49,574	25,802	28,299	19,574
Oklahoma	537	141,266	4,252	18,854	28,408	2,806	144,090	11,435	21,415	25,704	4,799
Texas	6,731	553,335	27,337	87,044	5,236	13,948	560,995	68,669	70,142	77,942	19,623
West South Central	23,375	1,288,031	94,680	161,046	182,776	49,733	1,391,828	181,780	144,869	161,602	85,041
Montana	2	10,057	267	3,050	1,261	50	29,102	3,141	8,027	8,578	49
Idaho	416	51,815	3,824	9,568	9,956	232	89,994	12,494	14,990	16,070	191
Wyoming	1	5,828	265	1,863	1,921	50	11,232	1,097	3,011	3,092	44
Colorado	148	39,143	3,410	9,018	9,299	1,282	47,774	7,005	11,719	11,969	689
New Mexico	61	19,241	2,631	4,781	4,853	61	22,382	4,086	4,667	4,704	54
Arizona	345	61,674	10,245	7,010	7,256	467	155,201	32,405	12,335	12,561	956
Utah	40	15,757	1,451	2,831	3,050	80	28,417	4,580	3,900	4,093	134
Nevada	14	1,121	20	224	236	12	9,155	414	546	568	40
Mountain	1,027	205,369	22,125	39,275	40,832	2,244	393,237	65,312	59,164	61,635	2,148
Washington	2,865	81,382	7,697	9,047	10,411	4,147	201,271	36,213	13,704	14,297	4,709
Oregon	1,570	96,861	14,778	11,924	12,572	3,389	147,400	25,640	12,334	12,858	3,028
California	16,056	1,030,301	103,879	54,247	56,351	14,978	1,525,966	172,965	65,715	68,184	20,300
Pacific	20,491	1,214,544	123,351	75,218	79,337	22,514	1,874,637	234,818	91,753	95,339	28,037
Continental United States	[4] 704,420	17,977,632	955,639	1,928,258	2,267,379	1,068,260	22,362,039	1,789,888	2,221,946	2,624,291	1,766,076
Hawaii	9,458	115,290	20,412	7,556	7,987	12,725	140,048	20,964	8,324	9,160	17,513
Puerto Rico	15,561	250,378	20,401	13,954	14,715	22,077	271,412	36,564	11,830	13,520	21,853
Alaska	[5] 23	[5] 1,000	[5] 72	[5] 125	[5] 130	[5] 41					
Territories	[5] 25,042	366,668	49,885	21,635	22,832	34,843	411,460	57,528	20,154	22,680	39,366
Total	[5] 729,462	18,344,300	1,005,524	1,949,893	2,290,211	1,103,103	22,773,499	1,847,416	2,242,100	2,646,971	1,806,042

[1] Branch surveys.
[2] Not including 175,305 tons of materials containing 72,000 tons of phosphoric oxide distributed by Government agencies.
[3] Includes Government distribution.
[4] Revised.
[5] The original report included data for the District of Columbia with those for Maryland.
[6] Estimated from imports and shipments from the mainland (*270, 280, 284*); was not included in the original report.

TABLE 108.—*All fertilizers: Consumption, by regions and States and Territories and by 6-month periods 1944–54* [1]

State and region or Territory	1944		1945		1946		1947		1948	
	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	217,557	9,162	225,419	16,196	238,195	28,797	223,966	38,704	218,587	26,660
New Hampshire	23,847	4,214	24,306	5,066	22,487	5,277	17,892	10,500	22,258	4,692
Vermont	40,173	14,303	23,345	27,012	20,034	24,629	21,403	22,018	34,835	13,320
Massachusetts	90,023	12,758	76,499	16,292	73,168	15,594	68,630	15,277	79,535	13,316
Rhode Island	15,025	1,759	15,853	1,706	16,132	2,751	14,341	2,240	16,843	1,735
Connecticut	82,340	8,767	78,877	14,110	76,910	11,502	71,083	7,485	75,868	10,830
New England	468,966	50,963	442,299	80,382	440,906	88,550	417,204	96,224	438,926	70,553
New York	452,613	99,743	441,188	114,658	432,312	131,879	442,897	140,114	438,864	110,672
New Jersey	218,513	38,764	210,627	36,621	209,947	54,616	188,894	57,562	195,956	60,399
Pennsylvania	333,896	158,636	339,534	146,290	369,382	179,452	371,094	179,557	385,673	170,456
Delaware	29,449	18,033	31,323	15,736	35,826	19,618	35,222	18,379	35,704	18,832
District of Columbia	1,164	452	[2] 1,010	232	1,191	713	1,530	544	1,224	434
Maryland	138,073	84,050	140,004	78,290	150,798	94,099	161,040	94,820	148,723	84,703
West Virginia	52,887	17,778	49,539	22,564	68,972	29,438	65,407	32,442	67,008	19,777
Middle Atlantic	1,229,105	403,456	[2] 1,213,823	414,461	1,266,426	509,815	1,267,094	523,424	1,273,212	463,173
Virginia	409,877	171,856	427,551	196,987	455,588	216,227	459,632	218,941	478,617	174,948
North Carolina	1,201,300	210,912	1,264,351	225,347	1,346,567	360,863	1,423,155	319,353	1,322,930	333,410
South Carolina	706,592	95,248	684,004	104,202	702,150	178,316	686,043	201,515	699,164	175,587
Georgia	988,841	117,973	884,792	152,002	945,665	235,022	1,031,854	241,285	1,030,206	199,909
Florida	468,850	331,092	464,257	356,677	528,963	421,734	460,694	313,329	410,917	261,128
South Atlantic	3,775,460	927,081	3,725,558	1,035,215	3,978,933	1,412,162	4,061,378	1,294,453	3,950,834	1,144,982
Ohio	384,401	253,321	386,945	252,525	429,865	308,618	471,741	313,646	534,810	355,984
Indiana	307,881	162,716	337,524	188,712	416,721	225,917	437,165	264,974	537,871	298,795
Illinois	218,620	192,631	204,767	[2] 355,707	298,637	391,773	575,699	463,239	543,917	486,928
Michigan	226,523	87,979	223,331	117,701	256,031	138,069	263,290	148,484	262,962	157,352
Wisconsin	197,500	46,020	191,648	71,728	218,259	97,201	251,881	112,752	312,664	117,254
East North Central	1,314,925	742,673	1,434,215	[2] 986,433	1,029,523	1,159,578	1,999,776	1,308,095	2,192,224	1,415,413
Minnesota	68,748	26,712	68,732	56,103	110,667	47,671	105,073	73,319	152,690	83,252
Iowa	88,063	30,707	111,869	58,977	137,289	78,502	150,870	111,537	197,594	116,682
Missouri	120,870	72,264	94,488	77,634	137,456	112,125	165,928	136,683	188,395	109,101
North Dakota	2,805	2,401	4,411	3,360	4,302	8,052	9,862	17,563	16,062	9,315
South Dakota	190	151	435	305	1,495	2,450	2,973	5,231	5,556	3,200
Nebraska	1,182	1,012	2,442	1,003	7,017	3,288	9,000	9,172	15,972	12,408
Kansas	25,027	31,385	15,256	24,995	14,997	40,195	34,276	59,696	38,461	65,471
West North Central	287,545	164,632	297,633	222,407	413,223	292,283	477,974	413,201	614,730	460,429
Kentucky	253,093	72,765	244,707	103,100	269,098	104,528	281,023	134,866	341,226	130,526
Tennessee	277,490	78,389	203,505	105,943	306,224	128,933	291,139	169,068	331,208	136,976
Alabama	729,345	138,969	673,709	163,753	688,331	213,621	705,669	298,449	795,868	273,843
Mississippi	373,514	93,190	403,821	88,652	488,082	113,191	429,293	222,355	482,842	227,359
East South Central	1,033,442	383,233	1,585,742	461,448	1,751,735	558,323	1,707,124	824,538	1,951,142	768,704
Arkansas	156,456	35,979	115,528	25,693	160,900	48,674	169,339	68,876	162,586	87,564
Louisiana	184,494	38,304	173,052	55,380	200,275	58,050	195,377	68,689	193,014	72,402
Oklahoma	20,273	6,676	15,905	10,701	26,456	20,431	36,995	31,504	50,043	40,457
Texas	168,249	46,955	187,411	90,961	218,681	143,561	262,338	176,768	281,500	178,939
West South Central	529,477	127,914	491,896	182,735	606,312	271,316	664,049	345,737	687,143	379,362
Montana	5,550	2,800	6,443	1,886	7,935	3,577	8,268	2,988	9,575	2,612
Idaho	23,567	11,955	32,547	8,253	40,598	18,542	39,338	19,338	39,372	14,600
Wyoming	2,791	812	3,977	1,220	3,939	1,882	3,296	1,936	6,299	1,158
Colorado	7,432	4,550	12,141	8,262	17,733	8,871	17,934	9,388	23,486	9,632
New Mexico	3,986	5,688	7,225	4,875	5,404	5,660	8,015	4,317	8,149	5,225
Arizona	18,351	16,268	19,211	19,604	12,560	32,191	29,017	44,194	34,474	37,683
Utah	6,988	5,641	7,009	1,797	9,380	5,608	13,605	5,446	12,083	2,418
Nevada	270	83	300	77	287	236	487	368	725	347
Mountain	68,935	47,787	88,043	45,974	97,536	76,567	119,960	87,855	134,143	73,575
Washington	43,242	25,616	50,851	30,217	67,898	43,868	60,620	31,080	51,491	25,165
Oregon	33,683	18,110	31,994	21,171	53,097	42,137	55,961	38,094	48,483	29,071
California	306,044	457,808	485,727	484,769	533,093	585,904	634,974	628,041	[2] 537,138	517,654
Pacific	382,969	501,534	568,572	536,187	654,088	671,909	751,555	697,221	637,112	571,890
Continental United States	9,690,914	3,353,673	[2] 9,847,781	[2] 3,985,272	10,838,682	5,040,503	11,466,174	5,590,748	[2] 11,879,466	5,348,061
Hawaii	42,366	39,524	51,026	65,950	45,256	37,489	51,782	49,778	49,359	55,522
Puerto Rico	110,666	93,328	80,822	116,947	95,248	108,879	133,379	105,492	142,976	120,411
Alaska	250	0	220	0	330	0	466	0	591	0
Territories	153,282	132,852	132,068	182,897	140,828	146,368	185,607	155,270	192,917	175,934
Total	9,844,196	3,486,525	[2] 9,979,849	[2] 4,148,169	10,979,510	5,186,871	11,651,781	5,746,018	12,072,383	5,523,994

See footnotes at end of table, p. 115.

TABLE 108.—*All fertilizers: Consumption, by regions and States and Territories and by 6-month periods 1944–54* [1]—Continued

State and region or Territory	1949		1950		1951		1952		1953		1954
	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-June
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	202,995	35,111	[2] 178,306	20,842	144,106	27,084	185,447	28,650	182,835	20,219	151,563
New Hampshire	21,354	5,919	22,097	8,057	20,393	3,558	17,464	2,885	18,570	2,305	13,507
Vermont	51,953	26,086	36,770	15,049	47,981	20,454	35,695	18,641	31,132	9,020	29,412
Massachusetts	78,369	11,652	77,559	16,087	78,863	14,937	77,142	14,595	76,778	14,450	70,508
Rhode Island	17,748	1,885	15,107	2,124	15,612	2,080	14,659	1,895	13,616	2,472	12,094
Connecticut	78,283	13,588	80,327	14,853	74,106	11,937	75,297	8,964	78,704	9,920	80,316
New England	450,702	94,241	[2] 411,157	75,612	381,055	80,050	405,704	75,630	395,635	58,395	358,360
New York	476,544	123,902	484,643	138,365	488,534	138,222	496,695	108,111	491,432	134,191	475,254
New Jersey	215,696	41,053	193,697	55,301	202,378	55,052	209,930	65,192	212,234	58,986	232,022
Pennsylvania	415,124	181,456	447,604	181,220	444,163	200,345	461,510	192,376	504,958	180,970	499,977
Delaware	49,214	15,380	42,127	15,389	51,389	16,937	63,450	16,997	73,887	14,340	80,541
District of Columbia	1,000	308	1,598	501	1,692	571	1,970	760	1,827	1,023	1,675
Maryland	161,679	84,847	166,900	87,321	189,465	86,771	210,155	84,434	219,251	79,404	233,139
West Virginia	31,999	20,003	84,055	20,778	80,296	23,079	76,799	19,676	97,601	16,913	60,270
Middle Atlantic	1,392,856	473,009	1,420,622	499,365	1,456,917	520,977	1,523,509	547,546	1,571,206	485,827	1,582,878
Virginia	534,290	167,820	560,484	221,031	510,306	208,022	659,989	200,411	653,022	169,749	629,314
North Carolina	1,481,846	287,277	1,453,671	491,280	1,491,946	332,645	1,608,534	301,545	1,600,095	264,436	1,584,763
South Carolina	820,163	126,105	745,423	207,841	751,646	173,509	805,522	169,698	806,235	142,654	798,467
Georgia	1,078,072	187,945	1,000,991	231,502	1,080,452	227,412	1,073,699	276,002	1,109,903	203,411	1,160,623
Florida	477,142	333,500	544,455	380,853	621,509	432,751	657,300	459,125	695,381	461,447	723,234
South Atlantic	4,391,513	1,105,647	4,303,524	1,445,507	4,555,919	1,375,239	4,805,144	1,406,779	4,864,636	1,246,697	4,896,401
Ohio	575,880	322,270	584,358	342,021	608,807	339,941	709,506	402,370	771,831	333,064	761,104
Indiana	523,087	222,264	576,203	301,280	633,369	296,619	783,616	314,304	891,489	285,359	895,389
Illinois	485,697	305,508	475,048	530,995	636,013	604,051	830,297	676,274	976,892	581,532	924,615
Michigan	308,587	140,196	334,289	172,311	332,828	200,961	389,957	215,760	432,216	174,703	425,689
Wisconsin	281,012	61,225	322,807	90,089	319,446	89,725	304,038	71,769	347,697	80,708	360,495
East North Central	2,179,272	1,141,469	2,292,705	1,447,996	2,531,363	1,534,300	3,017,514	1,680,477	3,420,125	1,455,366	3,367,272
Minnesota	168,345	31,850	186,146	48,769	152,198	55,925	169,181	47,392	220,317	68,430	254,345
Iowa	251,482	57,817	274,844	84,901	301,146	125,708	301,220	109,526	440,938	166,926	485,232
Missouri	219,856	146,317	261,393	221,071	416,258	231,835	521,260	326,804	508,890	256,461	500,159
North Dakota	12,205	3,703	14,968	2,711	11,494	7,365	23,783	10,803	29,602	16,371	31 386
South Dakota	6,416	088	4,510	2,698	6,622	3,435	7,859	2,827	13,796	6,975	23,032
Nebraska	25,255	7,217	30,450	17,370	50,137	30,126	64,310	41,507	104,395	54,687	144,426
Kansas	46,762	92,594	67,621	107,768	77,882	160,017	107,673	152,588	87,041	117,363	98,526
West North Central	730,121	340,484	845,932	484,711	1,016,087	554,411	1,195,286	691,447	1,403,089	687,213	1,537,029
Kentucky	420,626	100,770	453,320	124,802	435,353	137,008	493,111	136,182	478,017	89,268	492,315
Tennessee	362,072	110,460	395,369	138,936	409,369	135,762	467,098	145,430	434,481	116,635	413,459
Alabama	912,187	245,673	804,700	343,159	901,901	337,115	1,005,494	293,698	964,799	205,308	978,188
Mississippi	478,225	170,105	470,412	276,209	516,525	223,212	602,416	212,164	524,470	160,260	574,468
East South Central	2,173,110	626,507	2,214,301	883,166	2,323,148	833,097	2,568,119	787,474	2,401,767	585,469	2,458,430
Arkansas	229,350	50,155	268,485	74,089	308,295	55,610	303,131	71,267	294,799	54,568	316,119
Louisiana	177,433	61,842	212,748	80,338	243,949	79,790	250,548	86,316	232,537	72,905	246,261
Oklahoma	61,536	56,211	85,055	55,952	90,246	63,634	109,021	72,452	74,483	74,471	70,519
Texas	300,785	217,004	336,531	261,875	347,734	227,445	387,919	203,426	367,079	185,471	374,524
West South Central	769,104	385,212	902,819	473,034	990,224	426,479	1,050,617	433,461	968,898	388,405	1,008,423
Montana	6,772	2,353	8,604	6,789	14,056	8,825	14,418	7,567	18,456	12,997	16,105
Idaho	31,179	12,036	39,609	12,149	35,142	14,587	58,045	15,817	58,274	30,828	59,166
Wyoming	3,039	730	5,098	1,603	4,701	1,508	5,248	2,012	9,832	3,020	8,212
Colorado	26,147	9,610	29,533	13,717	37,064	8,277	39,254	11,905	36,645	13,370	34,404
New Mexico	8,923	7,103	12,133	6,067	15,682	5,784	13,296	9,628	18,163	5,742	16,520
Arizona	24,255	22,505	39,169	36,807	67,373	48,846	67,661	39,310	92,439	44,362	110,839
Utah	8,591	4,055	11,702	14,295	14,318	11,950	18,683	7,850	24,113	9,697	18,720
Nevada	380	402	662	[2] 1,152	[2] 2,617	1,617	4,095	2,934	8,089	2,938	6,217
Mountain	110,186	58,859	146,510	[2] 92,579	[2] 190,953	101,394	221,300	97,023	266,011	122,954	270,283
Washington	55,178	23,645	57,737	28,603	57,644	30,443	81,295	41,642	82,732	64,246	137,025
Oregon	46,192	29,118	67,743	56,229	68,286	45,352	74,956	59,338	88,631	49,866	97,534
California	554,592	469,040	566,352	599,589	848,986	684,768	942,333	756,635	995,109	664,828	891,138
Pacific	655,962	522,712	691,832	684,421	974,916	760,563	1,078,494	857,615	1,166,472	778,940	1,095,697
Continental United States	12,852,820	4,748,230	13,229,402	[2] 6,086,992	[2] 14,423,582	6,188,510	15,865,687	6,577,452	16,457,873	5,789,266	16,572,373
Hawaii	50,896	57,743	57,547	62,454	64,001	58,324	57,357	63,150	66,176	66,482	73,566
Puerto Rico	114,079	103,607	146,771	176,004	177,345	145,527	118,450	114,743	132,555	117,673	153,739
Alaska	1,006	0	1,000	0	516	1	562	0	653		
Territories	165,981	161,350	[2] 205,318	238,458	242,362	203,852	176,369	177,890	199,384	184,155	227,305
Total	[2] 13,018,807	4,909,580	[2] 13,434,720	[2] 6,325,450	[2] 14,665,944	6,390,362	16,042,056	6,755,351	16,657,257	5,973,421	16,800,078

[1] Branch surveys. Includes fertilizers distributed by Government agencies.

[2] Revised.

TABLE 109.—*All fertilizers: Consumption, by kind of fertilizer, years ended June 30, 1943, and 1946–53, and by kind and by regions, year ended June 30, 1954* [1]

Kind	1943 [2] [3]	1946	1947	1948	1949	1950	1951	1952	1953
Primary-nutrient fertilizers:	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Mixed fertilizers:									
N–P–K	6,292,424	9,389,368	10,961,904	11,290,577	11,773,130	11,197,502	12,522,277	13,464,869	14,079,818
N–P	61,088	80,945	150,339	203,419	208,924	178,471	228,610	275,585	363,691
P–K	1,271,509	557,189	524,475	615,129	763,198	[4] 819,884	1,091,302	1,300,999	1,097,533
N–K	39,711	80,643	79,990	74,067	66,280	73,849	114,508	145,096	181,182
Other [5]	38,915	84,099	25,948	26,447	27,965	27,890	23,589		
Chemical nitrogen materials:									
Ammonia, anhydrous [6]	3,295	18,000	25,061	43,373	65,596	85,516	118,423	168,273	217,182
Ammonia, aqua	172	133	572	4,747	5,799	10,560	17,659	20,026	(6)
Ammonium nitrate	17,684	294,565	374,618	347,347	347,223	577,562	638,376	709,189	846,252
Ammonium nitrate-limestone	1,243	55,299	65,145	72,640	109,596	102,205	192,431	257,517	419,845
Ammonium nitrate solutions [7]	0	3,000	7,049	12,234	6,874	11,108			72,917
Ammonium sulfate	181,121	146,230	208,729	211,225	220,041	234,664	[4] 461,601	486,517	531,749
Calcium cyanamide	69,298	109,190	102,068	74,068	63,985	81,578	64,222	42,254	82,219
Calcium nitrate	0	11	7,791	9,840	23,058	22,156	54,689	49,456	47,080
Sodium nitrate	760,365	672,759	403,060	597,480	700,045	627,424	[4] 683,067	681,701	647,483
Uramon, urea, uramon-limestone, and Nu-Green	6,208	2,703	2,896	3,490	18,305	18,339			
Other [8]	850	3,317	2,375	271	2,000	14,792	73,609	77,931	118,672
Natural organics:									
Blood, dried	762	585	1,063	1,092	1,126	1,299	1,262	1,644	1,699
Castor pomace	4,451	5,573	3,423	5,051	5,819	10,428	6,639	5,980	6,080
Compost	204		622	535	681	2,277	384	416	7,926
Cottonseed meal [9]	29,708	18,065	28,978	9,588	12,541	13,296	9,838	12,015	12,462
Fish scrap [10]	3,900	3,429	2,083	2,532	2,471	2,367	2,011	2,020	1,828
Hoof and horn meal	106	78	103	66	81	184	119	200	72
Linseed meal	613	90	90	1,045	1,051	925	1,095	162	663
Manure, dried	50,474	48,792	89,432	99,830	134,681	165,219	183,450	198,726	207,127
Sewage sludge, activated	11,090	31,256	48,482	60,402	60,575	61,791	63,964	70,519	69,831
Sewage sludge, other	24,163	28,422	25,529	17,858	28,026	27,740	38,423	37,591	38,531
Soybean meal	3,010	784	202	319	348	170	795	382	165
Tankage, animal	4,040	1,865	2,298	1,064	1,784	1,523	762	1,169	1,827
Tankage, garbage	183	973	217	177	1,006	1,406	1,262	1,174	1,201
Tankage, process	1,650	1,682	2,724	1,433	2,321	2,751	8,051	5,977	8,044
Tung meal			93	203	2,518	116	60	15	264
Other [11]	1,498	783	4,419	[12] 769	[13] 396	[14] 1,711	[15] 764	[16] 5,339	[16] 417
Phosphorus materials:									
Ammoniated superphosphate	7,960	410	3,490	3,205	5,358	1,681	9,683	7,258	8,701
Ammonium phosphate, 11–48	871	11,955	18,154	14,001	19,430	19,935	17,261	14,705	15,640
Ammonium phosphate, 13–39	0	0	7,068	0	0	887	13,680	21,034	38,546
Ammonium phosphate, 16–20	34,133	24,950	50,025	105,643	130,232	121,640	[4] 167,805	198,118	210,582
Basic lime phosphate	1,473	507	762	380	2,893	3,473	2,597	1,714	112
Basic slag	76,536	245,696	230,151	322,504	266,312	287,419	407,035	391,774	301,537
Bonemeal, raw	8,723	7,900	5,321	6,684	4,008	6,791	6,163	6,886	2,953
Bonemeal, steamed	9,700	4,819	5,193	5,284	9,405	5,679	7,892	4,756	8,372
Calcium magnesium phosphate [17]	0		59,178	3,147	2,630	5,034			
Calcium metaphosphate	7,159	7,049	9,235	6,278	4,717	10,343	16,804	24,774	17,678
Colloidal phosphate	(20)	(20)	(20)	13,231	17,317	20,720	42,728	41,103	40,969
Fused tricalcium phosphate	265	10,307	28,169	24,512	17,225	15,508	17,730	14,969	17,958
Phosphate rock	[21] 163,597	[21] 450,256	[21] 774,115	764,190	725,383	728,533	[4] 997,136	1,118,857	1,135,993
Phosphoric acid, liquid	825	3,112	4,324	6,153	3,930	6,900	9,987	18,508	14,516
Precipitated bone	210	174	528	376	1,462	460	502	291	403
Superphosphate:									
14–17 percent	7,522	4		50	0	0	562	0	0
18 percent	274,447	599,335	477,645	578,444	536,037	393,038	364,070	282,944	230,217
19–19.5 percent	23,685	146,899	150,060	139,392	46,589	64,654	34,218	82,255	73,839
20–22 percent	1,536,221	1,184,479	984,637	1,127,621	1,201,103	1,399,085	1,135,589	850,088	733,771
24–30 percent	5,431	808	2,073	3,282	740	1,397	3,035	5,481	10,145
40–44 percent	34,123	41,757	43,048	36,806	39,553	80,157	[4] 64,222	67,233	83,223
45 percent	4,381	56,705	83,770	86,593	92,412	111,563	75,374	72,544	76,653
46 percent	22,872	93	9,096	12,369	23,724	24,126	23,072	33,582	28,555
47 percent	300	5,328	21,551	26,281	32,287	15,740	5,403	16,240	32,686
48 percent	212	638	1,113	2,510	7,574	20,476	52,222	24,877	13,194
49–50 percent				0		11,690	16,397	5,102	4,394
Other [22]	1,803	4,340	702	41	4,944	1,186	0	0	0
Potassium materials:									
Cement-flue dust	5,000		3,925	2,312	2,343		7,317	[23] 24,726	[23] 24,340
Cotton-hull ash	1,256	416	1,809	1,631	1,158	1,571	1,477	699	600
Manure salts, 20 percent	1,097	107	14	333	0	0	0	0	
Manure salts, 22–30 percent	23,892	15,914	14,965	30,567	48,765	18,775	8,440	5,631	4,404
Potash-phosphate ash	0	1,110	23	1,448	2,233	2,430	1,978	2,088	8
Potassium carbonate		209	19	5	37	69	62	148	153
Potassium chloride, 50 percent	37,910	48,421	30,124	26,579	41,772	48,453	110,617	122,645	110,255
Potassium chloride, 60 percent	17,717	28,821	17,483	30,150	53,336	60,836	79,221	124,031	172,210
Potassium magnesium sulfate	1,354	1,324	6,282	5,712	8,125	5,300	6,093	5,873	5,777
Potassium nitrate	0	100	110	290	940	8,536	7,158	5,919	8,539
Potassium sodium nitrate	10,515	3,465	37	613	214	2,094	4,102	2,571	1,060
Potassium sulfate	4,867	3,855	7,286	7,593	11,747	13,902	18,703	20,433	22,141
Tobacco stems	1,067	3,502	3,711	1,218	1,114	308	1,739	1,931	1,121
Wood ashes	1,915	5,812	4,368	4,043	3,023	5,276	4,411	3,529	5,418
Other [24]	331	2,572	50	153	205	1,349	402		
Unspecified consumption in Alaska				591	916	1,000			
Total	11,210,830	11,572,110	[3] 16,223,120	17,192,597	18,033,230	[3] 17,901,793	[3] 20,345,125	21,647,308	22,535,121

See footnotes at end of table, p. 118.

TABLE 109.—*All fertilizers: Consumption, by kind of fertilizer, years ended June 30, 1943, and 1946–53, and by kind and by regions, year ended June 30, 1954* [1]—Continued

Kind	1954										
	New England	Middle Atlantic	South Atlantic	East North Central	West North Central	East South Central	West South Central	Mountain	Pacific	Territories	Total
Primary-nutrient fertilizers:	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Mixed fertilizers:											
N–P–K	320,587	1,733,122	4,631,903	3,315,152	990,949	1,895,358	645,286	21,244	228,950	261,098	14,049,649
N–P	94	92	1,980	2,442	271,241	72	29,092	34,848	30,705	3,317	382,982
P–K	25,232	104,655	194,184	302,825	80,824	143,035	38,505	79	2,182	2,393	894,814
N–K	0	44	193,930	715	102	481	177	21	1,046	16,215	213,631
Other [4]											
Chemical nitrogen materials:											
Ammonia, anhydrous [5]											350,474
Ammonia, aqua	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
Ammonium nitrate	4,390	25,535	81,642	118,200	176,501	233,353	112,754	45,147	127,194	0	924,716
Ammonium nitrate–limestone	170	3,324	291,066	17,464	14,740	60,222	3,485	52	80	0	390,603
Ammonium nitrate solutions [7]	0	2,116	5,083	13,132	34,193	595	4,390	14,180	95,978	21,910	191,592
Ammonium sulfate	288	3,762	6,334	55,858	25,663	9,552	65,232	58,830	241,324	69,893	536,736
Calcium cyanamide	738	7,600	16,029	5,553	342	15,092	15,041	1,250	6,538	0	68,213
Calcium nitrate	0	0	12,351	37	40	219	0	4,647	33,297	103	50,694
Sodium nitrate	2,622	16,115	381,548	2,173	259	179,619	69,218	982	417	122	653,105
Uramon, urea, uramon–limestone, and Nu-Green											
Other [8]	329	4,132	15,003	60,909	103,850	57,233	75,997	28,703	89,214	9,374	[9] 94,270
Natural organics:											
Blood, dried	0	145	80	0	0	0	0	15	1,536	0	1,776
Castor pomace	5,030	70	2,998	0	0	0	0	85	1,494	0	9,686
Compost	85	4,288	1,131	235	4,198	0	1,952	0	3	0	11,892
Cottonseed meal [10]	7,880	61	1,352	2	0	0	2	0	7	1	9,305
Fish scrap [11]	431	2	0	0	0	0	0	1	1,060	0	1,494
Hoof and horn meal	52	0	0	0	0	0	0	0	423	0	475
Linseed meal	583	0	0	0	0	0	0	0	0	0	583
Manure, dried	4,116	10,271	3,057	10,806	3,714	1,558	3,135	2,325	220,877	9	259,868
Sewage sludge, activated	4,415	9,965	3,001	26,090	6,531	1,164	2,259	2,191	14,345	70	70,021
Sewage sludge, other	0	0	0	1,235	391	0	0	0	29,017	0	30,843
Soybean meal	219	0	0	0	0	0	0	0	0	0	219
Tankage, animal	0	161	10	0	0	0	0	0	311	0	482
Tankage, garbage	0	12	9	0	0	0	0	0	0	0	21
Tankage, process	2,308	6,817	2,089	2,701	0	6	0	0	492	0	14,503
Tung meal	0	0	166	0	0	0	0	0	0	0	166
Other [12]	0	2	154	0	0	0	0	75	8,503	0	8,734
Phosphorus materials:											
Ammoniated superphosphate	0	0	72	0	0	0	0	929	6,651	741	8,393
Ammonium phosphate, 11–48	0	1	256	0	10,865	0	71	5,076	14,000	2,797	33,066
Ammonium phosphate, 13–39	0	0	0	260	21,023	0	4,151	2,159	4,978	0	32,571
Ammonium phosphate, 16–20	0	15	69	1,098	56,805	87	60,647	34,172	87,527	2,355	242,865
Basic lime phosphate	0	0	958	0	0	2,768	0	0	0	0	3,726
Basic slag	0	2,000	33,191	0	0	151,208	8,511	0	0	0	195,270
Bonemeal, raw	240	360	272	97	61	28	118	7	973	0	2,162
Bonemeal, steamed	1,504	3,677	1,134	1,362	1	418	544	1	1,016	0	9,657
Calcium magnesium phosphate [13]											
Calcium metaphosphate	0	90	1,861	5,628	14,869	5,355	245	140	101	0	28,289
Colloidal phosphate	0	1,200	911	10,726	9,627	11,015	2,462	40	320	0	36,301
Fused tricalcium phosphate	0	0	1,455	1,822	33	20,726	201	0	0	0	24,242
Phosphate rock	613	11,127	20,380	608,379	190,622	7,940	35,700	200	2,414	994	876,375
Phosphoric acid, liquid	0	0	0	0	0	0	38	5,561	9,647	0	15,246
Precipitated bone	470	0	0	0	0	0	0	0	0	0	470
Superphosphate:											
14–17 percent	0	0	0	0	0	0	0	0	0	0	0
18 percent	4,729	15,974	40,867	34,102	17,882	33,472	208	3,307	30,076	0	180,617
19–19.5 percent	3,939	10	1,146	21	262	1,006	0	18,735	40,298	0	65,417
20–22 percent	15,727	90,650	30,137	77,398	63,296	109,844	139,778	6,544	1,943	5,576	540,893
24–39 percent	0	211	0	382	2,572	26	2,781	920	55	0	6,947
40–44 percent	0	0	0	0	25,553	0	0	35,500	10,168	0	71,320
45 percent	0	205	70	16,521	35,403	1,327	23,316	8,898	3,597	1	89,338
46 percent	0	20	280	1,774	13,798	1,224	412	16,951	5,454	80	41,002
47 percent	39	65	90	612	14,567	8,532	495	2,532	585	0	27,526
48 percent	0	0	361	1,765	1,840	1,113	786	77	1,290	0	7,262
49–50 percent	0	24	0	684	451	161	2,332	95	0	0	3,747
Other [14]	0	0	1,168	0	160	0	501	31	2	322	2,184
Potassium materials:											
Cement-flue dust	0	[15] 1,943	[15] 21,040	0	0	[15] 2,700	0	0	0	0	[15] 25,683
Cotton-hull ash	880	8	52	0	0	0	0	0	0	0	949
Manure salts, 20 percent	0	0	0	133	0	4	546	0	0	0	683
Manure salts, 22–30 percent	0	8	1,714	40	500	0	0	0	0	0	2,262
Potash-phosphate ash	0	0	0	0	0	12	0	0	0	0	12
Potassium carbonate	0	0	151	0	0	0	0	0	0	0	151
Potassium chloride, 50 percent	34	187	21,206	6,567	1,798	11,389	10,051	31	993	800	53,056
Potassium chloride, 60 percent	1,900	3,629	23,127	113,909	26,329	41,383	30,610	311	4,174	11,538	256,979
Potassium magnesium sulfate	146	243	3,299	1,971	848	952	491	0	8	3	7,961
Potassium nitrate	188	7	0	0	0	0	0	0	0	0	195
Potassium sodium nitrate	10	0	11,015	0	0	596	40	180	0	0	11,880
Potassium sulfate	80	563	7,008	911	2	10,489	22	545	4,459	1,652	25,740
Tobacco stems	0	15	527	0	0	1	0	0	0	0	543
Wood ashes	0	0	5,456	0	0	0	0	0	0	0	5,456
Other [16]											
Unspecified consumption in Alaska											
Total	416,209	2,064,522	6,074,730	4,819,781	2,222,695	3,022,327	1,391,585	357,725	1,376,742	411,370	22,157,986

See footnotes at end of table, p. 118.

TABLE 109.—*All fertilizers: Consumption, by kind of fertilizer, years ended June 30, 1943, and 1946–53, and by kind and by regions, year ended June 30, 1954* [1]—Continued

Kind	1943 [2] [3]	1946	1947	1948	1949	1950	1951	1952	1953
Secondary- and trace-nutrient materials: [14]	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Aluminum sulfate	9	20	54	31	18	30	78	69	18
Borax	1,609	7,210	4,570	3,208	2,161	1,913	2,080	1,363	1,197
Calcium sulfate (gypsum, land plaster)	238,376	500,077	544,829	573,520	461,638	394,372	607,808	736,700	837,422
Copper sulfate (bluestone)	257	1,684	762	4,244	454	287	254	5,338	329
Ferrous sulfate (sulfate of iron)	6	88	237	116	59	1	26	14	73
Magnesium sulfate (kieserite and epsom salt)	46	71	264	356	258	173	148	144	130
Manganese sulfate	284	427	366	185	548	363	452	8,845	302
Sulfur, 25–99 percent	9,874	33,455	40,847	31,350	28,560	22,208	21,543	11,939	25,699
Sulfuric acid, 40–93 percent				5,238	9,441	4,825	2,018	6,909	3,340
Zinc sulfate	101	199	597	165	239	82	146	2,068	213
Other [14]	4,176	12,332	22,947	7,382	6,189	15,253	[21] 11,910	[22] 11,661	8,755
Total	254,798	555,563	615,523	625,804	509,565	439,507	646,269	785,050	877,487
All fertilizers	11,485,634	15,127,679	16,838,652	17,818,401	[3] 18,542,801	18,344,300	[3] 20,991,394	22,432,418	23,412,608

[1] Branch surveys. Government distribution and consumption in the Territories of Alaska, Hawaii, and Puerto Rico are included. The individual materials given here include the quantities used for home mixing but not those used in making commercial mixed fertilizers. (For the latter see table 92.)

[2] The original report (*140*) did not include Government distribution and was incomplete in other respects.

[3] Revised.

[4] Mixtures of superphosphate and trace-element materials, of ammonium sulfate and sodium nitrate, of limestone and potash salt, etc. In 1952 the limestone-potash mixtures are included with cement-flue dust.

[5] Some anhydrous ammonia is also included under other chemical nitrogeneous material. A regional breakdown cannot be given without disclosing the operations of individual companies.

[6] Included with ammonium nitrate solutions.

[7] Includes aqua ammonia consumed in 1953 and 1954.

[8] Ammonium sulfate-nitrate, urea, anhydrous ammonia, and materials not specified.

[9] Does not include above total for anhydrous ammonia.

[10] Exclusive of meal hauled back from oil mills by farmers or sold by the feed industry and used as fertilizer.

[11] Dried scrap, fish pomace, and fish meal.

[12] Cocoa byproducts, peanut-hull meal, apricot-kernel meal, olive-pit meal, bat guano, bird guano, and many other similar materials. (For peat see table 33.)

TABLE 110.—*All fertilizers: Index numbers of fertilizer consumption, by regions, calendar years 1940–53* [1]

Region	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
New England	109	143	138	155	167	168	170	165	164	175	157	148	155	146
Middle Atlantic	110	121	130	133	149	148	182	163	158	170	175	180	189	187
South Atlantic	103	112	116	136	138	140	158	157	150	161	169	174	182	179
East North Central	121	141	184	208	260	293	352	418	456	420	473	514	594	616
West North Central	136	162	213	274	410	471	639	807	974	970	1,205	1,423	1,709	1,894
East South Central	137	147	165	179	194	197	222	243	261	269	298	303	322	285
West South Central	143	173	172	312	234	240	312	356	379	411	400	504	528	483
Mountain	129	107	181	243	460	528	686	819	810	667	943	1,153	1,255	1,534
Pacific	116	138	150	197	352	440	528	576	481	469	548	691	770	774
Territories	117	113	75	79	104	115	105	124	134	119	161	163	129	140
Average	114	127	136	155	176	188	213	229	232	236	260	277	300	298

[1] 1935–39, 5-year average = 100. Computed from data in table 106.

TABLE 109.—*All fertilizers: Consumption, by kind of fertilizer, years ended June 30, 1948, and 1946–53, and by kind and by regions, year ended June 30, 1954* [1]—Continued

Kind	1954										
	New England	Middle Atlantic	South Atlantic	East North Central	West North Central	East South Central	West South Central	Mountain	Pacific	Territories	Total
Secondary- and trace-nutrient materials: [21]	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Aluminum sulfate	4	13	0	1	0	3	0	0	88	0	109
Borax	82	267	615	339	6	538	5	0	844	0	2,696
Calcium sulfate (gypsum, land plaster)	406	3,241	66,185	1,865	1,241	987	1,200	29,201	472,471	0	576,780
Copper sulfate (bluestone)	0	58	170	156	0	2	0	2	154	0	550
Ferrous sulfate (sulfate of iron)	0	0	18	2	0	0	0	64	518	0	602
Magnesium sulfate (kieserite and epsom salt)	18	158	1,041	23	0	0	0	6	119	14	1,379
Manganese sulfate	26	136	126	428	0	4	0	0	83	0	803
Sulfur, 25–99 percent	10	140	122	28	0	1	2,017	5,444	10,489	0	18,221
Sulfuric acid, 40–93 percent	0	0	0	0	0	0	0	741	2,298	0	3,039
Zinc sulfate	0	28	80	2	0	51	0	2	1,992	76	2,231
Other [22]	0	144	11	3	0	6	21	79	8,839	0	9,103
Total	546	4,183	68,368	2,857	1,247	1,572	3,243	35,512	497,895	90	615,513
All fertilizers	416,755	2,068,705	6,143,098	4,822,638	2,221,242	3,023,899	1,394,828	393,237	1,871,637	111,460	22,773,499

[22] Apricot-kernel meal, 10 tons; cocoa byproducts, 54 tons; olive-pit meal, 5 tons; peanut-hull meal, 11 tons; and unspecified organics, 689 tons.
[24] Apricot-kernel meal, 17 tons; peanut-hull meal, 5 tons; and unspecified organics, 374 tons.
[25] Bat guano, 339 tons; peanut-hull meal, 81 tons; peat, 60 tons; and unspecified organics, 1,231 tons.
[26] Includes 109 tons of peanut-hull meal.
[27] Includes 51 tons of peanut-hull meal.
[28] Includes 50 tons of peanut-hull meal.
[29] Phosphate rock-magnesium silicate glass (*382*); also called calcium-magnesium phosphate, Thermo-Phos, and MP phosphate.
[30] Included with phosphate rock.
[31] Includes some colloidal phosphate.
[32] Ammonium phosphate-nitrate (28–14), spent bone black, and unspecified phosphates.
[33] Includes material reported merely as 0-0-6, 0-0-S, etc., which in part consists of mixtures of potash salts with limestone, lime, or oystershells.
[34] Kainit, potassium polysulfide, and unspecified potash materials.
[35] Excludes liming materials and additional quantities of some of the materials listed that may have been shipped by other than fertilizer manufacturers or companies not covered by the surveys.
[36] Magnesia, lime-sulfur solution, sulfur dioxide, magnesium carbonate, boric acid, and unspecified secondary- and minor-element materials.
[37] Includes 4,902 tons of lime-sulfur solution used as a soil amendment.
[38] Includes 1,070 tons of magnesite (magnesium carbonate).

TABLE 111.—*All fertilizers: Estimated consumption, by crops, selected years 1927–50* [1]

Crop	1927		1938		1942		1946		1950	
	Fertilizer applied	Part of total	Fertilizer applied	Part of total	Fertilizer applied	Part of total	Fertilizer applied	Part of total	Fertilizer applied	Part of total
	1,000 tons	*Percent*	*1,000 tons*	*Percent*	*1,000 tons*	*Percent*	*1,000 tons*	*Percent*	*1,000 tons*	*Percent*
Corn	1,509	22.0	1,633	21.8	2,203	21.8	3,275	20.6	4,359	24.2
Cotton	1,693	24.7	1,462	19.5	1,461	14.4	1,484	9.3	1,769	9.8
Wheat	682	9.9	739	9.9	780	7.7	1,114	6.9	1,501	8.4
Commercial vegetables	297	4.4	425	5.7	660	6.5	1,559	9.8	1,366	7.6
Oats	326	4.8	347	4.6	496	4.9	883	5.6	1,328	7.4
Pasture	20	.3	161	2.2	584	5.8	986	6.2	1,295	7.2
Hay	164	2.4	239	3.2	695	6.9	892	5.6	935	5.2
Tobacco	472	6.9	505	6.8	547	5.4	973	6.2	898	5.0
Fruits	249	3.6	313	4.2	626	6.2	895	5.7	756	4.2
Potatoes	580	8.5	556	7.5	709	7.0	1,004	6.3	755	4.2
Home gardens	130	1.9	150	2.0	231	2.3	350	2.2	300	1.7
Nonagricultural [2]	50	.7	100	1.3	100	1.0	200	1.3	251	1.4
Soybeans	18	.3	35	.5	68	.7	120	.8	216	1.2
Barley	20	.3	32	.4	119	1.2	137	.9	180	1.0
Peanuts	49	.7	57	.8	184	1.8	252	1.6	162	.9
Sweetpotatoes	112	1.6	133	1.8	149	1.5	154	1.0	150	.8
Rice	13	.2	16	.2	25	.2	54	.3	108	.6
Sugar beets	14	.2	33	.4	40	.4	84	.5	89	.5
Dry beans and peas	12	.2	15	.2	14	.1	20	.1	76	.4
Buckwheat	26	.4	20	.3	13	.1	36	.2	56	.3
Sugarcane	12	.2	31	.4	32	.3	60	.4	54	.3
Nuts	20	.3	20	.3	30	.3	50	.3	53	.3
Rye	18	.3	15	.2	22	.2	30	.2	36	.2
All other	358	5.2	434	5.8	336	3.3	1,267	8.0	1,285	7.2
Total	6,844	100.0	7,471	100.0	10,125	100.0	15,879	100.0	17,978	100.0

[1] 1950, year ended June 30; others, calendar years. Continental United States only; includes Government distribution. The cotton data are from table 113, and the tobacco data, except for 1938 and 1950, are from Mehring (*159*). The figures for tobacco for 1938 and for other crops for 1927, 1938, and 1946 are estimates based largely on surveys by the National Fertilizer Association (*178*)—the Association's survey for 1944 is largely the basis for the 1946 estimates. The 1942 data, except for cotton and tobacco, and the 1950 data, except for cotton, are based, respectively, on unpublished studies by the U. S. Office of Agricultural Relations and by J. N. Lowe, U. S. Production and Marketing Administration.
[2] Such as golf courses, parkings, airports, cemeteries, and parks.

TABLE 112.—*All fertilizers: Fertilizer and manure consumption per acre of specified crops grown in 1938, by regions and States* [1]

State and region	Corn		Wheat		Oats		Potatoes		Sugar beets		Cotton	
	Fertilizer	Manure	Fertilizer	Manure	Fertilizer	Manure	Fertilizer	Manure	Fertilizer	Manure	Fertilizer	Manure
	Pounds	*Tons*	*Pounds*	*Tons*	*Pounds*	*Tons*	*Pounds*	*Tons*	*Pounds*	*Tons*	*Pounds*	*Tons*
New England	227	0.4			66	1.6	1,665	2.9	[2]	[2]	[2]	[2]
New York	142	6.0	245	2.1	198	.9	445	4.2	[2]	[2]	[2]	[2]
New Jersey	255	5.1	230	.8	172	.7	1,930	.8	[2]	[2]	[2]	[2]
Pennsylvania	141	4.6	226	1.4	177	.8	662	5.4	[2]	[2]	[2]	[2]
Delaware	139	3.3	304	.2	211	2.2	781	3.6	[2]	[2]	[2]	[2]
Maryland	135	3.3	308	.4	253	.6	745	3.1	[2]	[2]	[2]	[2]
West Virginia	120	1.6	194	.7	141	.4	605	5.2	[2]	[2]	[2]	[2]
Middle Atlantic	144	4.2	248	1.2	186	.7	703	4.3	[2]	[2]	[2]	[2]
Virginia	136	1.2	278	1.0	204	.3	1,349	2.9	[2]	[2]	390	
North Carolina	206	.4	204	.4			1,091	.9	[2]	[2]	426	0.3
South Carolina	188	.1	286	.2			1,364	1.4	[2]	[2]	388	.4
Georgia	84	.1	161	.4			385	.8	[2]	[2]	294	.2
Florida	87	.2	[3]	[3]			1,787	.2	[2]	[2]	244	.6
South Atlantic	135	.3	231	.6			1,253	1.5	[2]	[2]	318	.3
Ohio	82	3.2	176	1.0	64	.2	451	5.5	212	.9	[2]	[2]
Indiana	57	1.8	121	.9	31	.2	223	4.1	242	[3]	[2]	[2]
Illinois	7	1.4	22	.7	4	.1	31	2.8	124	[4]	[2]	[2]
Michigan	36	4.4	120	1.4	47	.7	152	6.9	207	3.1	[2]	[2]
Wisconsin	38	5.2	8	1.0	10	.6	88	6.0	162	2.7	[2]	[2]
East North Central	36	2.5	107	.9	19	.3	183	5.9	205	2.5	[2]	[2]
Minnesota	4	3.5	1	.3	3	.4	54	4.3	73	.3	[2]	[2]
Iowa	6	1.8	7	.5	1	.2	23	1.8	156	.3	[2]	[2]
Missouri	5	1.0	53	.9	12	.2	95	4.8			16	
North Dakota	[4]	1.3	[4]	.2	[4]	.2	8	1.8	51	.2	[2]	[2]
South Dakota	[4]	1.1	[4]	.1	[4]	.1	28	2.2	66	1.9	[2]	[2]
Nebraska	[4]	.7	[4]	.2	[4]	.2	5	.6	30	2.7	[2]	[2]
Kansas	1	1.0	3	.1	5	.4	2	2.0	34	1.4	[2]	[2]
West North Central	3.3	1.5	7	.2	2.7	.2	34	2.8	49	1.7	16	
Kentucky	54	.6	112	.2			366	3.0	[2]	[2]	[2]	[2]
Tennessee	40	.5	112	.3			422	2.3	[2]	[2]	106	.4
Alabama	68	.1	188	1.3			840	1.2	[2]	[2]	294	.2
Mississippi	36	.1	[2]	[2]			346	1.4	[2]	[2]	153	.3
East South Central	50	.3	112	.2			516	2.1	[2]	[2]	201	.3
Arkansas	13	.2	26	.2			291	3.5	[2]	[2]	58	.2
Louisiana	58	.2	[2]	[2]			404	.3	[2]	[2]	98	.3
Oklahoma	2	.2	[4]	.1			171	2.9	[2]	[2]	1	.1
Texas	9	.1	[4]				127	2.9	[2]	[2]	9	.1
West South Central	16	.2	3	.1			177	2.4	[2]	[2]	23	.1
Montana	2	.7	[4]	.1	[4]	.2	132	1.7	93	5.0	[2]	[2]
Idaho	1	4.6	1	.2	[4]	.8	18	3.6	85	9.4	[2]	[2]
Wyoming	[4]	.3	[4]	.4	[4]	1.0	[4]	1.5	75	5.8	[2]	[2]
Colorado	[4]	.4	[4]	.2	[4]	.6	1	3.7	21	8.0	[2]	[2]
New Mexico	[4]	.5	[4]	.2	[4]	.1	25	6.1	[2]	[2]	[2]	[2]
Arizona	[4]	.3	4	.7	[4]	.1	215	.8	[2]	[2]		
Utah	[4]	3.7	[4]	.6	3	2.6	97	5.3	69	7.3	[2]	[2]
Nevada	[4]	4.6	[4]	.2	[4]	.3	[4]	11.8	[2]	[2]	[2]	[2]
Mountain	[4]	.5	[4]	.2	[4]	.6	27	3.5	61	7.3		
Washington	22	4.1	[4]	.1	3	.8	188	2.3	198	2.6	[2]	[2]
Oregon	7	3.7	1	.2	4	.6	110	1.9	115	5.4	[2]	[2]
California							248	.2	16	.7		
Pacific	12	3.8	1	.1	4	.7	194	1.2	35	1.0		
United States [5]	39	1.4	27	.3			437	3.6	85	4.0	117	.2

[1] "Agricultural Statistics, 1940" (*298*). The information was compiled by the U. S. Bureau of Agricultural Economics from questionnaires filled out by crop reporters. All data are weighted by the acreage of the crop grown by each farmer to get State figures and then by States to get regional and national averages. The original report also gives a few data for tobacco, citrus fruit, and hay and the average cost per ton of fertilizers used on each crop by States.

[2] Crop not grown in this State or region in significant acreages.

[3] Less than 0.1 ton per acre.

[4] Less than 0.5 pound per acre.

[5] Weighted averages for the States reporting.

TABLE 113.—*All fertilizers: Percentage of cotton acreage fertilized, quantities of fertilizer used, and rate of application, by States, 1922–53* [1]

Crop year	Virginia			North Carolina			South Carolina			Georgia			Florida			Tennessee			Alabama			Mississippi		
	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized
	Percent	*Tons*	*Pounds*	*Percent*	*Tons*	*Pounds*	*Percent*	*Tons*	*Pounds*	*Percent*	*Tons*	*Pounds*	*Percent*	*Tons*	*Pounds*	*Percent*	*Tons*	*Pounds*	*Percent*	*Tons*	*Pounds*	*Percent*	*Tons*	*Pounds*
1922	93	11,200	400	95	285,155	410	88	211,960	280	83	269,903	218	80	9,800	200	25	21,300	200	78	216,205	210	30	88,200	200
1923	95	14,630	385	95	323,615	445	89	230,175	310	93	330,125	250	88	19,135	250	30	34,230	210	88	313,030	230	44	130,055	190
1924	95	24,420	440	90	397,500	450	95	345,690	345	95	350,325	270	91	8,200	200	45	43,670	205	88	313,089	238	46	140,300	200
1925	90	18,915	390	99	402,300	450	91	379,050	350	95	424,393	265	90	11,048	232	50	63,729	219	90	368,358	215	50	194,043	213
1926	94	14,135	390	97	352,040	440	91	352,625	325	90	450,997	257	91	14,088	245	50	60,830	220	91	409,765	255	48	201,243	222
1927	95	11,812	375	99	318,780	420	92	305,235	315	94	363,831	217	81	7,202	215	48	45,526	208	88	340,443	243	39	142,230	210
1928	97	14,438	375	99	359,040	440	91	320,300	325	96	421,200	260	86	13,200	255	61	70,524	216	93	430,335	202	49	213,070	220
1929	97	16,770	390	98	357,408	435	92	307,395	330	96	436,852	265	84	12,490	240	60	68,997	218	92	446,993	270	53	238,920	220
1930	95	17,748	408	97	300,000	425	91	205,350	330	96	452,200	272	91	16,804	248	55	69,106	218	92	433,346	202	58	285,350	220
1931	92	13,000	400	92	198,648	350	80	216,000	245	91	320,129	226	85	13,189	218	31	32,240	197	76	268,570	213	33	126,350	190
1932	87	8,556	276	83	161,370	314	78	153,638	241	80	205,300	190	62	8,600	200	13	11,090	167	60	163,315	176	22	71,004	168
1933	90	11,285	332	91	207,375	350	90	252,650	310	90	291,462	228	80	10,355	218	20	20,930	182	74	244,755	210	29	86,768	170
1934	95	10,312	375	95	167,550	360	92	191,200	320	95	246,720	240	83	8,855	230	27	19,364	138	84	195,110	220	40	94,535	185
1935	95	9,750	390	99	175,695	300	96	226,065	345	97	263,642	255	90	10,455	255	29	20,350	185	89	240,480	240	46	120,745	190
1936	96	10,400	400	94	195,570	410	96	237,525	350	97	295,475	265	88	10,270	260	31	23,750	190	90	268,005	255	55	161,490	195
1937	97	13,325	410	98	230,858	435	97	321,530	390	98	350,045	290	91	14,170	260	40	37,700	200	93	364,820	290	61	220,920	210
1938	95	8,200	400	93	158,355	435	97	245,000	400	95	303,150	300	94	10,010	260	53	39,300	209	95	306,125	310	68	200,568	225
1939	90	6,160	385	99	160,390	430	97	242,200	400	99	295,350	300	95	9,100	260	51	38,335	205	97	320,925	315	72	215,662	225
1940	97	6,400	400	93	173,040	420	97	240,075	405	99	299,052	305	94	8,320	260	58	42,300	200	96	308,070	315	74	216,370	220
1941	99	7,290	405	99	175,120	440	98	290,150	430	99	309,138	325	98	9,145	205	64	45,305	205	96	283,635	330	77	212,962	225
1942	99	9,225	450	99	195,930	400	98	245,775	435	99	267,705	335	96	8,602	305	62	48,375	215	98	282,740	335	68	174,090	210
1943	99	8,075	475	99	199,975	475	99	247,195	470	99	292,365	365	96	6,773	315	70	58,100	230	98	298,875	375	78	230,535	235
1944	97	6,900	460	99	193,035	510	99	267,145	505	99	289,090	400	96	4,508	315	67	50,175	225	98	273,500	400	80	227,040	240
1945	100	4,275	450	100	154,088	525	99	249,375	525	99	255,035	410	98	4,200	350	73	49,725	225	99	288,060	420	85	242,875	250
1946	99	4,600	460	99	159,090	530	99	243,015	510	99	241,600	400	99	3,728	355	70	51,060	230	97	318,538	425	81	258,905	270
1947	99	5,325	550	99	180,900	540	99	251,880	540	99	268,490	430	95	5,850	320	68	57,385	230	99	324,075	435	73	230,152	265
1948	98	5,512	515	99	205,800	560	99	308,580	555	99	282,040	440	99	5,510	360	79	76,000	240	99	368,778	455	80	268,580	260
1949	99	6,900	600	99	250,800	570	99	357,938	575	100	308,052	405	97	9,775	425	83	98,280	260	99	452,040	480	85	320,252	265
1950	99	5,750	500	100	162,270	540	99	239,250	550	100	245,055	405	98	6,355	410	38	79,380	280	99	315,360	480	92	258,795	270
1951	98	5,092	535	99	190,080	540	99	297,920	560	100	348,880	480	99	14,570	470	92	103,740	280	99	363,500	500	95	351,000	300
1952	99	7,150	550	99	201,875	550	99	301,950	550	100	303,348	505	100	12,512	455	95	117,852	295	99	392,700	510	97	337,415	290
1953	100	8,400	560	100	207,900	540	100	302,400	560	100	348,075	510	99	14,400	450	97	127,310	290	100	397,500	500	95	357,740	310

See footnotes at end of table, p. 122.

TABLE 113.—*All fertilizers: Percentage of cotton acreage fertilized, quantities of fertilizer used, and rate of application, by States, 1922–53* [1]—Continued

Crop year	Missouri			Arkansas			Louisiana			Oklahoma			Texas			Other States [2]			United States					
	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage fertilized	Fertilizer used	Rate per acre fertilized	Cotton acreage [3]	Percent fertilized	Fertilizer used	Rate per acre fertilized	Average price of fertilizer per ton	Average cost per acre when used
	Percent	*Tons*	*Pounds*	*Percent*	*Tons*	*Pounds*	*Percent*	*Tons*	*Pounds*	*Percent*	*Tons*	*Pounds*	*Percent*	*Tons*	*Pounds*	*Percent*	*Tons*	*Pounds*	*1,000 acres*	*Percent*	*Tons*	*Pounds*	*Dollars*	*Dollars*
1922	0	0	------	15	36,805	105	20	20,425	100	0	0	------	2	20,825	170	0	0	------	32,176	30	1,104,808	250	20.48	3.68
1923	3	900	300	31	81,400	145	38	47,215	190	1	2,475	150	5	72,770	190	0	0	------	37,000	34	1,905,045	258	30.76	3.96
1924	4	1,700	170	35	87,438	177	50	03,700	175	5	14,850	150	7	107,075	175	0	450	150	40,000	35	1,809,907	208	28.90	3.87
1925	5	1,500	120	35	111,532	185	42	02,842	171	1	4,320	160	5	80,675	175	1	90	180	45,909	34	2,124,080	270	32.49	4.39
1926	5	1,500	125	38	121,082	185	42	72,960	190	1	4,200	175	4	68,930	185	1	95	190	45,839	35	2,101,250	260	32.60	4.38
1927	6	1,000	125	30	72,400	173	40	52,238	175	1	2,828	145	2	29,785	185	1	82	165	39,471	33	1,693,308	262	25.47	3.34
1928	5	1,125	125	40	128,095	167	43	74,462	185	1	3,960	190	6	102,932	197	0	0	------	43,737	37	2,158,771	206	31.59	4.22
1929	5	1,260	140	40	139,882	188	50	00,372	188	2	7,650	180	7	113,775	185	0	0	------	44,448	38	2,230,746	265	31.62	4.20
1930	7	1,955	145	44	145,595	185	52	02,790	180	2	7,000	175	7	102,200	175	0	0	------	43,329	39	2,200,709	259	31.65	4.10
1931	5	1,260	140	27	77,226	172	39	46,750	170	1	3,026	178	3	39,984	178	0	0	------	39,110	30	1,954,921	230	25.49	2.93
1932	3	1,040	160	14	37,758	167	18	24,939	163	1	2,800	175	1	11,900	175	0	0	------	30,494	23	885,069	206	22.06	2.27
1933	3	1,400	200	13	36,400	160	16	23,772	168	1	3,895	190	1	12,870	165	0	0	------	40,248	25	1,206,920	240	30.26	2.43
1934	6	1,425	150	13	22,800	160	20	18,360	153	1	1,812	125	1	15,822	146	0	0	------	27,860	29	906,695	245	25.57	3.14
1935	6	1,590	150	15	26,160	180	27	27,000	160	2	4,165	170	2	19,162	175	1	82	125	28,083	32	1,151,451	255	25.96	3.36
1936	6	1,812	145	20	41,580	185	35	39,202	155	1	2,000	160	3	28,960	160	2	140	140	30,627	33	1,316,539	240	23.81	3.10
1937	9	2,720	160	25	59,840	170	45	58,492	165	1	1,875	150	4	40,880	160	3	240	160	34,090	37	1,754,415	280	26.32	3.69
1938	10	2,970	165	34	62,560	170	53	54,532	165	1	1,062	125	5	40,075	175	3	248	165	25,018	41	1,402,475	284	25.71	3.63
1939	8	2,550	170	41	76,245	170	90	58,620	170	1	1,330	140	6	46,550	175	16	1,613	202	24,883	43	1,475,133	280	20.11	3.65
1940	20	10,700	200	45	80,100	165	60	71,100	180	1	1,330	140	7	52,785	170	------	2,547	182	24,871	44	1,521,459	277	25.96	3.80
1941	23	8,640	180	57	101,065	170	64	59,938	175	2	2,362	135	8	58,875	175	------	4,607	185	23,432	46	1,527,232	285	26.35	3.78
1942	20	6,558	155	58	102,550	175	60	55,530	180	1	1,188	125	5	35,870	170	------	6,275	180	23,302	43	1,400,623	293	30.77	4.50
1943	27	8,050	160	58	95,812	175	60	65,910	195	1	1,000	125	5	34,650	175	------	6,875	195	21,900	46	1,571,309	312	32.53	5.10
1944	26	9,095	170	58	94,050	180	65	52,915	190	1	938	125	6	38,430	180	------	12,285	210	19,956	46	1,496,376	326	34.70	5.65
1945	35	8,225	175	58	87,848	195	67	49,920	195	1	810	135	6	34,390	190	------	9,310	225	17,533	49	1,439,636	337	35.30	5.94
1946	44	15,900	210	62	101,840	190	57	40,560	195	5	3,240	120	5	33,755	215	------	10,976	220	18,157	48	1,484,177	339	36.10	6.13
1947	43	18,630	180	66	134,160	195	59	46,945	205	10	6,670	115	6	50,600	200	------	22,626	240	21,580	45	1,632,668	340	39.80	6.76
1948	40	21,375	190	70	163,400	200	63	59,220	210	11	7,375	125	8	73,920	210	------	59,018	250	23,253	48	1,809,498	340	44.90	7.84
1949	48	20,900	200	75	205,102	205	70	73,316	215	17	13,660	120	11	123,100	200	------	75,768	245	27,914	50	2,357,102	344	47.70	8.20
1950	60	26,900	200	85	161,500	220	76	88,035	235	17	9,840	120	15	105,700	200	------	87,069	240	18,629	57	1,769,340	333	46.90	7.81
1951	74	43,095	195	84	213,555	230	81	99,970	260	16	15,455	110	14	167,770	190	------	235,570	295	28,195	52	2,450,187	337	52.90	8.92
1952	71	38,610	220	90	201,992	235	85	97,410	255	14	9,900	110	14	152,255	185	------	236,367	270	27,185	54	2,474,326	343	54.70	9.38
1953	83	40,970	220	87	205,000	250	82	93,020	260	13	7,820	115	15	149,548	205	------	251,045	291	25,244	59	2,522,128	355	55.60	9.85

[1] U. S. Agricultural Marketing Service (*261, 262*) and U. S. Bureau of Agricultural Economics (*268*).

[2] Arizona, California, Illinois, Kansas, Kentucky, Nevada, and New Mexico.

[3] Acreage as of July 1 of each year.

TABLE 114.—*All fertilizers: Estimated quantities used on tobacco, by States, selected calendar years 1927–52*

State	1927 [1]	1937 [1]	1942 [1]	1947 [1]	1950 [2]	1951 [2]	1952 [2]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Massachusetts	10,900	8,000	7,600	12,000	13,000	12,500	8,500
Connecticut	34,450	19,000	22,400	30,900	27,000	23,000	23,000
New York	250	300	300	400	150	100	100
Pennsylvania	5,610	3,400	4,300	15,700	14,000	14,000	8,800
Ohio	5,900	1,500	1,800	5,000	6,500	8,500	9,000
Indiana	1,000	1,000	2,000	3,200	4,400	5,800	6,900
Wisconsin	1,200	800	1,200	2,200	3,200	3,100	1,900
Maryland	7,420	9,000	10,540	20,692	19,500	21,000	21,000
Virginia	57,120	48,000	50,800	78,000	64,000	75,000	76,000
North Carolina	263,560	315,000	305,500	543,000	386,000	468,000	461,000
South Carolina	36,340	49,700	41,620	82,300	72,000	83,000	88,000
Georgia	27,090	38,200	35,500	87,084	61,000	76,000	74,000
West Virginia	580	600	800	1,400	1,300	1,500	1,800
Florida	4,590	9,400	8,640	16,600	10,500	14,500	15,000
Kentucky	7,980	26,900	40,000	170,000	162,500	174,000	192,000
Tennessee	6,860	13,700	13,600	38,500	51,000	51,000	58,000
Other [3]	700	400	600	1,100	2,000	1,700	2,000
Total	471,550	544,900	547,200	1,108,076	898,050	1,033,700	1,045,300

[1] Mehring (*139*).

[2] Computations based on unpublished data reported to the U. S. Bureau of Agricultural Economics by tobacco growers. A shift to higher analysis grades of fertilizer subsequent to 1947 accounts, at least in part, for the decrease in tonnage in many of the States.

[3] Alabama, Kansas, Louisiana, Minnesota, Missouri, New Hampshire, and Vermont.

TABLE 115.—*All fertilizers: Estimated [1] quantities of primary nutrients applied to pastures and to harvested crops, by regions and States, 1947*

State and region	Nitrogen		Available phosphoric oxide		Total phosphoric oxide		Potash	
	Pastures	Harvested crops	Pastures	Harvested crops	Pastures	Harvested crops	Pastures	Harvested crops
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	615	12,760	974	25,866	1,013	29,960	611	27,144
New Hampshire	268	683	750	2,167	780	2,295	482	1,132
Vermont	268	839	2,177	5,372	2,264	5,781	1,155	1,266
Massachusetts	940	3,435	1,343	6,783	1,401	7,167	908	4,708
Rhode Island	6	750	600	1,316	625	1,388	6	1,220
Connecticut	355	4,853	921	6,000	959	6,433	824	4,824
New England	2,461	23,318	6,765	47,301	7,042	50,027	3,986	40,154
New York	2,212	18,908	10,766	67,136	11,218	70,612	322	27,119
New Jersey	172	11,021	1,004	28,559	1,676	29,995	674	21,055
Pennsylvania	167	17,142	6,205	65,852	6,466	69,354	428	32,984
Delaware	26	2,031	551	5,635	576	6,009	123	1,32
Maryland	189	9,225	3,131	27,270	3,266	28,655	680	17,348
West Virginia	143	1,033	6,012	8,000	6,271	9,491	45	3,098
Middle Atlantic	2,909	61,260	28,269	203,442	29,473	214,116	2,272	105,920
Virginia	798	22,060	15,676	69,925	16,319	73,579	578	31,762
North Carolina	1,496	79,135	7,894	149,321	8,285	158,883	1,610	95,042
South Carolina	151	45,048	4,185	75,442	4,373	79,247	304	47,815
Georgia	273	55,220	12,114	106,878	12,599	112,381	1,833	65,011
Florida	663	37,722	4,334	59,015	4,507	63,917	533	54,319
South Atlantic	3,409	240,085	44,203	460,581	46,063	486,007	4,858	294,849
Ohio	241	19,319	2,822	96,071	2,943	101,988	577	53,892
Indiana	515	14,125	1,572	79,697	1,643	94,863	553	52,495
Illinois		10,526	2,200	55,484	2,552	198,468	100	29,034
Michigan	16	10,073	8,846	43,315	9,288	48,294	738	26,817
Wisconsin	3,388	5,710	2,822	44,089	2,940	49,754	1,790	29,395
East North Central	4,160	59,765	18,262	319,256	19,375	401,362	3,758	191,633
Minnesota	10	4,342	2,833	24,160	2,946	26,450	417	9,011
Iowa	5	7,197	1,417	31,175	1,484	37,844	583	10,233
Missouri	4	5,691	2,732	40,693	2,864	44,995	114	11,452
North Dakota		382	100	2,748	104	3,072		1,043
South Dakota		136	30	757	31	1,035	10	147
Nebraska		2,134		2,264		2,452		40
Kansas		2,393	600	13,446	624	14,658		1,134
West North Central	19	22,295	7,712	115,252	8,033	130,506	1,124	33,980
Kentucky	38	13,059	8,701	38,439	9,111	46,313	201	17,130
Tennessee	67	16,100	10,810	44,244	11,264	46,543	123	16,386
Alabama	413	43,773	13,578	81,542	14,216	85,567	559	40,125
Mississippi	198	56,073	13,476	28,953	14,055	30,496	126	17,700
East South Central	716	129,005	46,625	193,078	48,646	208,919	1,009	91,341
Arkansas	50	18,050	4,000	18,688	4,160	19,678	130	11,601
Louisiana	147	22,063	5,221	20,179	5,430	21,408	252	7,109
Oklahoma		1,447	1,600	4,203	1,664	10,630		964
Texas		21,284	11,000	40,100	11,410	44,724	200	9,900
West South Central	197	63,744	21,821	83,170	22,664	96,440	582	29,034
Montana		338	100	4,192	101	4,403		30
Idaho	20	2,403	300	9,925	316	10,421		1,251
Wyoming		21		1,338		1,405		9
Colorado	5	2,360	100	4,810	105	5,060		325
New Mexico		527		3,950		4,147		40
Arizona		5,939		7,411		7,782		84
Utah	25	732	200	4,805	210	5,045		135
Nevada		30	15	185	16	194		5
Mountain	50	12,359	715	36,625	750	38,457		1,894
Washington	119	7,710	2,981	7,901	3,115	8,386		3,540
Oregon	100	7,664	2,100	9,603	2,195	10,093		2,869
California	167	98,720	3,833	48,170	4,005	50,598		24,364
Pacific	386	114,091	8,914	65,734	9,315	69,077		30,773
Total	14,307	725,915	183,286	1,521,532	191,391	1,784,911	17,589	819,567

[1] Mehring and Parks (*143*).

TABLE 116.—*All fertilizers: Estimated [1] quantities of nutrients removed from the soil by harvested crops, and percentage replaced by applications of fertilizers and by farm manure, by regions and States, 1947*

State and region	Nitrogen				Total phosphoric oxide				Potash			
	Removal	Replacement			Removal	Replacement			Removal	Replacement		
		Fertilizers	Manure	Total		Fertilizers	Manure	Total		Fertilizers	Manure	Total
	Tons	*Percent*	*Percent*	*Percent*	*Tons*	*Percent*	*Percent*	*Percent*	*Tons*	*Percent*	*Percent*	*Percent*
Maine	22,788	74	28	102	7,009	380	39	419	24,879	109	17	126
New Hampshire	7,858	13	42	55	2,354	97	55	152	7,359	15	27	42
Vermont	26,398	5	146	151	7,812	74	167	241	24,630	5	82	87
Massachusetts	11,047	52	145	197	3,287	218	164	382	10,336	46	80	126
Rhode Island	1,223	85	[2] 202	[2] 287	381	364	[2] 269	[2] 633	1,152	106	[2] 136	[2] 242
Connecticut	10,143	78	162	240	2,883	223	201	424	9,465	49	93	142
New England	79,457	45	[2] 100	[2] 145	23,846	210	[2] 123	[2] 333	77,821	52	[2] 58	[2] 110
New York	132,474	29	115	144	40,323	174	113	287	115,064	24	58	82
New Jersey	16,207	121	43	163	5,378	558	46	604	14,002	150	26	176
Pennsylvania	113,045	25	136	161	38,336	181	144	325	77,604	42	104	146
Delaware	5,001	59	88	147	2,214	271	81	352	3,175	136	85	221
Maryland	20,909	53	79	132	9,058	297	85	382	17,290	100	69	169
West Virginia	23,236	11	73	87	7,489	127	81	208	17,571	18	51	69
Middle Atlantic	317,772	31	112	146	103,598	207	115	322	244,706	43	72	115
Virginia	62,106	65	21	86	20,444	360	22	382	39,316	81	16	97
North Carolina	99,111	123	8	131	30,327	517	10	527	63,803	150	7	157
South Carolina	44,059	138	5	143	15,686	505	7	512	22,374	214	7	221
Georgia	84,170	131	8	139	27,409	410	8	418	36,278	179	9	188
Florida	16,833	334	15	349	6,151	1,039	18	1,057	15,766	344	10	354
South Atlantic	306,279	130	10	140	100,017	486	12	498	177,537	168	9	175
Ohio	188,780	17	74	91	67,954	150	78	228	98,873	54	71	125
Indiana	203,034	11	46	57	74,866	127	49	176	89,849	56	51	112
Illinois	373,263	5	71	76	135,881	146	71	217	158,223	18	81	99
Michigan	134,970	15	96	111	42,637	109	95	204	92,814	29	58	87
Wisconsin	216,923	5	140	145	68,058	73	152	225	151,536	19	91	110
East North Central	1,116,976	10	82	92	389,390	126	85	211	591,295	32	74	106
Minnesota	301,252	2	61	63	105,598	25	79	101	159,971	6	69	75
Iowa	335,517	3	34	37	110,521	32	39	71	159,580	6	39	45
Missouri	166,753	7	42	49	57,266	79	39	118	102,377	11	29	40
North Dakota	213,285	.2	7	7	86,936	3	11	14	96,624	1.1	13	14
South Dakota	176,330	.1	11	11	66,420	2	17	19	88,996	.2	17	17
Nebraska	240,424	1.1	10	11	87,505	3	13	16	135,515	.03	11	11
Kansas	306,829	1.0	4	5	122,062	12	5	17	152,761	.7	5	6
West North Central	1,740,390	1.7	23	25	644,808	20	30	50	895,824	4	28	32
Kentucky	97,667	26	7	33	30,453	152	7	159	70,050	24	5	29
Tennessee	86,060	38	38	76	28,451	161	32	196	56,602	20	25	54
Alabama	55,788	117	5	122	19,334	443	5	448	25,502	157	6	163
Mississippi	65,654	119	1	120	23,152	132	2	134	33,687	52	2	54
East South Central	305,169	73	12	85	101,390	206	12	218	185,850	49	10	59
Arkansas	68,067	47	12	59	22,655	87	12	99	39,407	26	11	39
Louisiana	32,373	84	3	87	12,900	166	3	169	16,996	42	4	46
Oklahoma	143,506	1.2	3	4	54,850	19	4	23	75,385	1.3	5	6
Texas	260,751	9	1	10	101,613	44	1	45	122,593	8	1	9
West South Central	504,697	15	3	18	192,018	50	3	53	254,381	11	4	15
Montana	111,708	.4	30	30	38,716	11	32	43	71,925	.05	27	27
Idaho	101,494	5	58	63	30,121	35	48	83	77,938	1.6	29	30
Wyoming	37,506	.1	77	77	10,879	13	79	92	30,485	.03	44	44
Colorado	120,440	3	38	41	41,265	12	42	54	84,016	.4	32	33
New Mexico	23,680	4	.2	4	7,300	57	.2	57	16,285	.3	.1	.4
Arizona	23,052	56	.1	56	6,355	122	.1	122	19,367	.4	.1	.5
Utah	37,009	5	[2] 59	[2] 64	9,870	51	[2] 47	[2] 98	32,498	.4	[2] 22	[2] 22
Nevada	13,617	.6	.1	.7	3,387	6	.1	6	13,092	.04	.04	.1
Mountain	468,603	5	[2] 39	[2] 44	147,893	26	[2] 39	[2] 65	345,510	.5	[2] 25	[2] 26
Washington	84,805	14	14	28	30,903	27	15	42	47,550	7	15	22
Oregon	59,047	19	9	28	19,842	51	10	61	43,147	7	7	14
California	226,880	91	29	120	61,020	82	28	110	196,552	12	13	25
Pacific	371,632	55	21	76	112,365	61	22	83	287,249	11	13	24
United States	5,210,975	21	[2] 37	[2] 58	1,815,331	98	[2] 43	[2] 141	3,060,179	27	[2] 35	[2] 62

[1] Mehring and Parks (*148*).

[2] Revised.

TABLE 117.—*All fertilizers: Planted acreage, percentage fertilized, rate of application and consumption of nitrogen, available phosphoric oxide, and potash, and nutrient ratio, by crops and regions and Territories, year ended June 30, 1950* [1]

Crop and region or Territory	Acreage		Nitrogen		Available phosphoric oxide		Potash		Nutrient ratio		
	Planted	Percentage fertilized	Rate per acre when used	Quantity used	Rate per acre when used	Quantity used	Rate per acre when used	Quantity used	N	P_2O_5	K_2O
Wheat:	*Acres*	*Percent*	*Pounds*	*Tons*	*Pounds*	*Tons*	*Pounds*	*Tons*			
New England	3,125	58.6	32.4	15.1	60.4	55.3	35.9	16.7	1	3.66	1.10
Middle Atlantic	1,951,000	89.6	8.0	7,035.5	43.1	37,681.3	16.6	14,466.0	1	5.36	2.06
South Atlantic	1,193,000	85.8	15.9	8,143.5	25.0	12,783.7	17.2	8,778.0	1	1.57	1.08
East North Central	6,519,000	86.6	7.1	19,973.7	29.1	82,121.9	19.2	54,338.7	1	4.11	2.72
West North Central	33,262,000	14.3	5.4	11,804.1	18.2	42,042.0	3.6	7,784.0	1	3.61	.66
East South Central	692,000	64.2	12.8	2,188.7	40.8	8,906.1	22.0	3,739.4	1	4.07	1.71
West South Central	11,995,000	6.0	5.1	1,838.2	16.5	5,970.9	20.1	332.1	1	3.25	.18
Mountain	11,345,000	2.6	13.9	2,042.1	19.4	1,162.3			1	.57	
Pacific	4,436,000	5.6	29.1	3,567.0	32.0	955.8	24.0	34.1	1	.27	.01
Continental United States	71,396,125	21.1	7.9	56,608.8	26.6	192,285.3	13.6	89,489.0	1	3.40	1.58
Territories	756	45.0	23.5	4.0	47.0	8.0	11.8	2.0	1	2.00	.50
Total	71,396,881	21.1	7.9	56,612.8	26.6	192,293.3	13.6	89,491.0	1	3.40	1.58
Rye:											
New England	50,000	84.0	9.0	188.1	70.8	1,562.3	33.2	696.7	1	7.99	3.70
Middle Atlantic	308,000	71.1	7.7	848.0	34.4	3,773.2	8.6	943.0	1	4.45	1.11
South Atlantic	204,000	35.0	13.8	709.2	23.7	1,219.7	15.3	786.6	1	1.72	1.11
East North Central	669,000	29.5	4.3	441.2	20.8	2,140.9	17.7	1,823.8	1	4.85	4.13
West North Central	1,586,000	7.2	4.3	246.9	24.8	1,415.0	9.2	526.1	1	5.73	2.13
East South Central	223,000	62.2	8.8	454.8	39.4	2,733.7	22.3	1,173.6	1	6.01	2.58
West South Central	240,000	20.8			22.0	550.7				1	
Mountain	232,000										
Pacific	88,000										
Total	3,720,000	23.5	7.3	2,888.2	30.6	13,335.5	15.1	5,949.8	1	4.62	2.06
Rice:											
South Atlantic	500	100.0	14.4	3.6	28.8	7.2	19.2	4.8	1	2.00	1.33
West North Central	1,400	75.0	13.9	7.3	16.6	8.7	6.9	3.6	1	1.19	.49
West South Central	1,378,000	44.8	28.3	8,725.5	20.5	5,261.0	10.0	3,090.2	1	.60	.35
Mountain	300	50.0	22.7	1.7					1		
Pacific	240,000	77.0	44.2	4,087.9	44.2	15.9	50.0	.6	1	.003	0
Continental United States	1,620,200	49.6	31.9	12,826.0	20.5	5,292.8	10.0	3,099.2	1	.41	.24
Territories	200	100.0	69.0	16.9	172.0	17.2	141.0	14.1	1	1.02	.83
Total	1,620,400	49.6	31.9	12,842.9	20.6	5,310.0	10.1	3,113.3	1	.41	.24
Corn:											
New England	185,000	55.0	20.0	1,017.4	63.0	3,202.9	28.5	1,447.9	1	3.15	1.42
Middle Atlantic	3,154,000	80.4	12.0	15,151.1	39.8	50,521.0	18.4	23,324.6	1	3.33	1.54
South Atlantic	9,051,000	84.0	24.8	94,343.7	24.4	92,628.9	17.4	66,216.2	1	.98	.70
East North Central	26,344,000	60.8	6.5	39,877.9	24.5	150,891.6	20.1	123,744.5	1	3.78	3.10
West North Central	33,981,000	22.5	7.2	27,246.5	14.5	53,714.2	6.5	19,242.9	1	1.97	.71
East South Central	9,545,000	73.1	22.1	73,506.0	19.2	67,138.6	11.6	38,929.6	1	.91	.53
West South Central	6,858,000	34.2	24.3	28,525.1	11.0	12,931.6	6.1	7,150.7	1	.45	.25
Mountain	1,154,000	7.7	16.6	731.0	32.9	1,452.8	3.3	28.1	1	1.99	.04
Pacific	130,000	31.3	57.4	1,167.1	48.6	539.1	14.8	129.4	1	.46	.11
Continental United States	84,370,000	47.0	14.3	281,565.8	22.0	433,020.7	14.9	280,213.9	1	1.62	.96
Territories	900	100.0	170.4	76.7	177.1	79.7	142.0	63.9	1	1.04	.83
Total	84,370,900	47.0	14.4	281,642.5	22.0	433,100.4	14.9	280,277.8	1	1.62	.96
Oats:											
New England	232,000	20.7	24.7	694.9	40.3	1,356.1	20.8	838.9	1	1.99	1.21
Middle Atlantic	1,850,000	77.4	7.6	5,416.0	43.3	30,986.2	17.5	12,541.3	1	5.72	2.32
South Atlantic	2,398,000	81.8	15.8	15,518.7	17.8	17,512.2	13.1	12,827.5	1	1.13	.83
East North Central	11,098,000	48.3	4.0	10,727.1	20.2	54,092.0	14.9	39,978.9	1	5.04	3.73
West North Central	23,820,000	16.1	5.5	7,483.6	31.5	42,736.7	4.8	8,441.8	1	5.71	1.13
East South Central	1,134,000	75.0	22.0	9,371.4	32.4	9,926.1	15.0	4,261.5	1	1.06	.45
West South Central	3,522,000	15.7	17.9	4,951.0	22.7	6,282.2	13.7	3,769.7	1	1.27	.76
Mountain	1,326,000	2.8	9.1	170.7	21.2	397.3			1	2.33	
Pacific	1,262,000	6.5	27.0	1,090.5	19.2	634.8	6.4	23.3	1	.58	.02
Total	46,642,000	30.5	8.5	55,423.9	25.6	163,953.6	12.3	82,682.9	1	2.96	1.49
Barley:											
New England	7,000	22.9	34.4	27.5	44.2	35.4	33.0	26.4	1	1.29	.96
Middle Atlantic	377,000	84.8	7.7	1,237.5	43.1	6,897.0	16.0	2,556.5	1	5.57	2.06
South Atlantic	181,000	91.4	19.4	1,602.2	31.0	2,566.2	21.6	1,785.0	1	1.60	1.11
East North Central	437,000	67.5	5.2	430.6	24.3	3,583.8	18.8	2,782.0	1	8.32	6.46
West North Central	5,804,000	6.1	4.6	621.0	20.0	3,415.2	8.7	1,035.5	1	5.50	1.67
East South Central	177,000	73.7	19.4	551.1	35.6	2,322.4	18.4	993.0	1	4.21	1.80
West South Central	514,000	1.1	30.3	83.4	40.9	129.0	20.1	35.2	1	1.55	.42
Mountain	2,090,000	3.9	23.5	1,226.5	19.7	1,034.7	.9	1.3	1	.84	.001
Pacific	2,958,000	17.9	40.0	10,579.4	28.3	2,467.0	16.4	150.1	1	.23	.01
Total	13,235,000	14.4	19.6	16,359.2	29.2	22,450.7	16.2	9,365.0	1	1.37	.57

See footnotes at end of table, p. 129.

TABLE 117.—*All fertilizers: Planted acreage, percentage fertilized, rate of application and consumption of nitrogen, available phosphoric oxide, and potash, and nutrient ratio, by crops and regions and Territories, year ended June 30, 1950* [1]—Continued

Crop and region or Territory	Acreage		Nitrogen		Available phosphoric oxide		Potash		Nutrient ratio		
	Planted	Percentage fertilized	Rate per acre when used	Quantity used	Rate per acre when used	Quantity used	Rate per acre when used	Quantity used	N	P_2O_5	K_2O
Sorghum: [2]	*Acres*	*Percent*	*Pounds*	*Tons*	*Pounds*	*Tons*	*Pounds*	*Tons*			
South Atlantic	134,000	72.1	30.5	1,471.9	26.3	1,268.6	18.5	894.2	1	0.86	0.61
East North Central	9,000	10.0	2.0	.1	12.0	.6	10.0	.5	1	6.00	5.00
West North Central	4,323,000	1.9	13.0	520.1	15.4	618.2	7.2	109.7	1	1.19	.21
East South Central	167,000	84.5	36.2	2,553.1	30.0	2,113.7	23.3	1,644.3	1	.83	.64
West South Central	10,568,000	.8	1.9	79.5	10.9	460.8	1.2	50.2	1	5.80	.63
Mountain	1,224,000	2.1	28.9	372.7	23.8	306.7			1	.82	
Pacific	142,000	23.1	40.2	659.8	57.6	323.7	69.2	270.1	1	.49	.41
Total	16,567,000	2.8	24.6	5,657.0	23.2	5,092.3	16.5	2,969.0	1	.80	.52
Cotton:											
South Atlantic	2,552,000	99.6	31.6	40,215.6	45.1	57,381.2	29.2	37,095.3	1	1.42	.92
East North Central	5,000	20.0	5.4	2.7	19.4	9.7	22.0	11.0	1	3.59	4.07
West North Central	440,140	60.0	20.1	2,657.6	14.7	1,942.6	27.2	3,590.2	1	.73	1.35
East South Central	4,079,000	93.9	36.7	70,394.1	33.7	64,518.2	19.8	38,026.4	1	.92	.54
West South Central	10,511,000	27.3	15.4	22,145.3	15.5	22,267.3	8.9	12,718.6	1	1.01	.57
Mountain	462,110	51.3	57.1	6,770.2	30.0	3,518.5			1	.52	
Pacific	600,000	78.3	74.4	17,486.1	64.2	3,835.1	15.6	183.2	1	.22	.01
Continental United States	18,649,250	54.8	31.2	159,671.6	31.1	153,372.6	19.2	91,624.7	1	.96	.57
Territories	5,100	41.2	66.8	70.1	45.7	48.0	60.6	63.6	1	.68	.91
Total	18,654,350	54.8	31.3	159,741.7	31.1	153,420.6	19.2	91,688.3	1	.96	.57
Flax:											
East North Central	16,000	16.2	4.0	1.0	11.4	14.8	7.8	10.2	1	14.80	10.20
West North Central	3,668,000	8.5	3.4	539.9	22.8	3,526.8	9.3	1,434.7	1	6.53	2.66
West South Central	227,000	27.0	18.9	579.4	27.4	839.2	6.0	184.7	1	1.45	.32
Mountain	90,000	13.2	29.2	173.7	32.0	190.6			1	1.10	
Pacific	63,000	84.0	53.8	1,424.0	52.4	1,361.5			1	.96	
Total	4,064,000	10.9	12.4	2,718.0	27.2	5,932.9	8.8	1,629.6	1	2.18	.60
Sugar beets:											
East North Central	173,000	97.8	9.2	777.0	48.9	4,136.7	34.8	2,946.0	1	5.32	3.79
West North Central	175,000	55.2	11.7	308.4	35.1	1,804.2	34.5	1,270.2	1	5.49	4.12
West South Central	4,000	80.0	57.0	91.2	66.1	105.7			1	1.16	
Mountain	401,000	71.7	16.9	2,071.0	53.0	7,620.7	2.4	6.1	1	3.68	.002
Pacific	262,000	87.9	94.9	10,935.1	83.9	5,099.8	40.5	766.3	1	.47	.07
Total	1,015,000	77.5	40.5	14,182.7	55.0	18,657.1	34.9	4,988.6	1	1.32	.35
Sugar cane:											
South Atlantic	65,100	91.2	7.5	230.1	17.3	529.1	70.1	2,149.6	1	2.30	9.34
East South Central	34,000	98.0	37.7	627.7	37.5	624.3	21.4	356.7	1	.99	.57
West South Central	308,000	94.7	25.7	3,749.4	5.8	847.0	3.3	483.7	1	.22	.13
Continental United States	407,100	94.9	23.8	4,607.2	10.4	2,000.4	15.5	2,990.0	1	.43	.65
Territories	567,000	82.4	169.3	39,534.3	66.9	15,631.2	126.9	29,630.7	1	.40	.75
Total	974,100	87.6	103.5	44,141.5	41.3	17,631.6	76.4	32,620.7	1	.40	.74
Tobacco:											
New England	28,217	100.0	177.9	2,510.6	112.5	1,586.6	198.9	2,809.7	1	.63	1.08
Middle Atlantic	91,700	98.9	24.6	1,114.0	39.7	2,707.3	75.4	3,422.2	1	2.43	3.07
South Atlantic	988,100	99.8	38.4	18,902.0	117.1	57,732.5	82.0	40,397.4	1	3.05	2.14
East North Central	51,500	83.7	31.9	688.3	81.8	1,762.9	81.9	1,764.7	1	2.56	2.56
West North Central	4,200	90.0	70.3	132.9	52.4	99.0	69.4	131.1	1	.74	.99
East South Central	461,500	98.0	40.2	10,452.3	58.6	13,261.6	44.7	10,104.2	1	1.27	.97
West South Central	100	100.0	20.0	1.0	48.0	2.4	20.0	1.0	1	2.40	1.00
Continental United States	1,625,317	98.7	42.2	33,801.1	96.2	77,152.8	73.0	58,520.3	1	2.28	1.73
Territories	30,000	100.0	61.1	916.3	91.9	1,378.3	103.8	1,557.3	1	1.50	1.70
Total	1,655,317	98.7	42.5	34,717.4	96.1	78,531.1	73.6	60,077.6	1	2.26	1.73
Peanuts:											
South Atlantic	1,798,000	51.7	7.0	3,429.6	20.7	10,171.5	17.5	8,623.8	1	2.96	2.51
West North Central	200	100.0	9.0	.9	27.0	2.7	18.0	1.8	1	3.00	2.00
East South Central	447,000	87.2	22.8	185.3	28.6	5,574.6	14.3	2,780.4	1	30.08	15.00
West South Central	774,000	61.0	3.3	770.3	22.4	5,293.4	6.0	1,425.1	1	6.87	1.85
Mountain	7,600	21.9	23.2	2.3	50.2	41.9			1	18.22	
Continental United States	3,026,800	63.1	6.0	4,388.4	22.8	21,084.1	13.9	12,831.1	1	4.80	2.92
Territories	10	100.0	200.0	1.0	200.0	1.0	180.0	.9	1	1.00	.90
Total	3,026,810	63.1	6.02	4,389.4	22.8	21,085.1	13.9	12,832.0	1	4.80	2.92
Soybeans:											
New England	76	75.0	21.0	.6	80.7	2.3	56.1	1.6	1	3.83	2.67
Middle Atlantic	241,000	50.2	6.3	158.4	36.3	2,194.6	25.4	1,508.4	1	13.85	9.52
South Atlantic	996,000	40.0	2.0	397.8	24.3	4,847.7	25.3	5,033.3	1	12.19	12.65
East North Central	7,085,000	17.1	2.4	1,171.9	19.8	12,044.0	20.2	12,270.2	1	10.28	10.47
West North Central	4,821,000	2.5	3.8	112.0	18.3	1,126.6	11.7	527.3	1	10.06	4.71
East South Central	1,220,000	24.3	6.3	452.7	20.3	3,009.2	10.1	1,301.0	1	6.65	2.87
West South Central	1,045,000	17.8			22.6	2,099.6	5.6	513.3		1	.24
Total	15,408,076	15.2	2.8	2,293.4	21.6	25,324.0	18.7	21,155.1	1	11.04	9.22

See footnotes at end of table, p. 129.

TABLE 117.—*All fertilizers: Planted acreage, percentage fertilized, rate of application and consumption of nitrogen, available phosphoric oxide, and potash, and nutrient ratio, by crops and regions and Territories, year ended June 30, 1950* [1]—Continued

Crop and region or Territory	Acreage		Nitrogen		Available phosphoric oxide		Potash		Nutrient ratio		
	Planted	Percentage fertilized	Rate per acre when used	Quantity used	Rate per acre when used	Quantity used	Rate per acre when used	Quantity used	N	P_2O_5	K_2O
Fruits:	*Acres*	*Percent*	*Pounds*	*Tons*	*Pounds*	*Tons*	*Pounds*	*Tons*			
New England	123,200	59.3	38.5	1,406.9	22.4	822.9	18.9	687.6	1	0.58	0.49
Middle Atlantic	558,700	77.1	24.8	5,345.1	15.5	3,339.5	11.3	2,433.1	1	.62	.46
South Atlantic	1,024,000	92.3	57.0	26,024.6	69.4	32,774.5	79.5	37,391.3	1	1.22	1.39
East North Central	736,100	75.3	25.8	7,137.5	27.2	7,122.9	24.7	6,474.7	1	1.00	.91
West North Central	107,950	81.7	6.3	279.2	28.4	34.3	19.2	14.4	1	.12	.05
East South Central	187,000	35.0	40.6	1,331.6	51.6	1,278.1	26.5	655.3	1	.96	.49
West South Central	431,750	42.0	57.0	5,172.2	40.6	3,685.8	32.7	1,591.3	1	.71	.31
Mountain	76,500	40.2	45.4	600.3	10.8	125.9	2.8	14.2	1	.18	.02
Pacific	317,600	58.0	40.0	3,683.5	38.0	3,496.4	19.0	1,745.7	1	.95	.47
Continental United States	3,562,800	71.7	40.7	51,970.3	43.8	52,080.3	44.2	51,007.6	1	1.01	.98
Territories	59,490	78.0	317.6	7,354.3	88.2	2,042.4	72.9	1,689.2	1	.28	.23
Total	3,622,290	71.7	45.6	59,324.6	44.7	54,722.7	44.7	52,696.8	1	.92	.89
Potatoes:											
New England	160,500	99.5	112.8	9,512.1	222.9	18,799.1	253.8	21,401.1	1	1.98	2.25
Middle Atlantic	288,900	96.4	67.5	9,397.5	149.4	20,804.3	136.0	18,942.5	1	2.21	2.02
South Atlantic	178,400	99.8	81.5	7,244.2	117.8	10,467.1	90.4	8,032.1	1	1.44	1.11
East North Central	243,000	84.0	15.6	1,896.1	68.1	8,950.1	87.0	8,879.4	1	3.66	4.68
West North Central	325,700	34.6	10.3	521.5	31.4	1,767.3	36.2	1,873.6	1	3.39	3.21
East South Central	98,000	97.3	40.6	1,938.4	82.1	3,916.6	56.1	2,674.6	1	2.02	1.38
West South Central	80,300	79.1	35.8	1,221.6	48.9	1,668.2	33.7	1,150.3	1	1.37	.94
Mountain	409,800	66.4	19.0	1,724.5	39.0	3,531.3	14.1	1,172.4	1	2.05	.68
Pacific	202,000	84.0	95.8	8,164.5	63.8	4,035.1	36.6	1,590.0	1	.49	.19
Continental United States	2,001,600	77.4	57.6	41,619.8	101.8	71,939.1	97.9	65,516.0	1	1.73	1.57
Territories	335	100.0	65.7	11.0	151.6	25.4	70.4	11.8	1	2.31	1.07
Total	2,001,935	77.4	57.6	41,630.8	101.8	71,964.5	97.9	65,527.8	1	1.73	1.57
Vegetables: [3]											
New England	117,200	94.0	58.3	3,233.9	114.0	6,281.1	95.9	5,281.3	1	1.94	1.63
Middle Atlantic	680,965	99.0	49.9	16,827.9	105.9	35,702.8	70.8	23,866.4	1	2.12	1.42
South Atlantic	882,650	99.8	62.0	27,282.3	108.7	47,865.8	87.6	38,577.9	1	1.75	1.41
East North Central	684,600	92.0	14.4	4,535.2	52.7	16,597.7	42.3	13,331.7	1	3.66	2.94
West North Central	262,900	64.7	11.0	513.0	27.0	1,773.3	16.0	1,050.4	1	3.46	2.05
East South Central	208,900	97.8	44.6	4,558.9	61.1	6,241.4	45.8	4,672.4	1	1.37	1.02
West South Central	636,200	75.3	30.6	7,306.8	49.0	11,710.4	27.9	6,684.8	1	1.60	.91
Mountain	187,300	75.4	53.6	3,654.2	37.1	2,529.9	13.7	926.1	1	.69	.23
Pacific	808,500	68.1	84.4	23,256.9	84.2	19,711.9	50.8	8,648.3	1	.85	.37
Continental United States	4,493,215	86.2	48.5	91,169.1	79.9	148,420.3	57.6	102,939.3	1	1.63	1.13
Territories	11,800	100.0	117.2	691.3	124.2	732.8	72.8	429.3	1	1.06	.62
Total	4,445,015	86.3	48.8	91,860.4	80.1	149,153.1	57.7	103,368.6	1	1.62	1.12
Nuts: [4]											
South Atlantic	266,000	33.1	27.2	711.8	36.2	1,501.0	27.7	922.6	1	2.11	1.30
East South Central	145,000	90.6	37.4	2,456.8	22.1	1,454.2	12.7	835.1	1	.59	.34
West South Central	53,000	80.0	30.8	844.9	49.2	1,042.2	37.5	796.0	1	1.23	.94
Pacific	242,000	51.3	108.4	6,644.2	58.5	90.3	91.2	599.3	1	.01	.90
Continental United States	706,000	54.7	81.7	10,657.7	37.0	4,087.7	38.5	3,152.4	1	.38	.30
Territories	192,500	8.3	69.1	552.2	89.4	714.2	60.6	483.6	1	1.29	.88
Total	898,500	44.7	81.1	11,209.9	44.8	4,801.9	41.4	3,636.0	1	.43	.32
Hay:											
New England	2,309,250	25.9	7.1	2,117.5	43.6	12,939.7	20.4	6,089.4	1	6.11	2.88
Middle Atlantic	5,634,000	9.3	6.7	2,413.2	55.2	20,539.8	26.0	9,664.9	1	8.51	4.00
South Atlantic	3,068,000	25.1	3.8	1,450.4	22.8	8,706.5	18.0	6,909.4	1	6.00	4.76
East North Central	13,225,000	12.1	4.8	1,168.2	22.1	17,653.4	16.4	8,208.0	1	15.11	7.08
West North Central	14,479,000	8.6	5.7	2,507.2	37.4	23,218.9	14.2	7,983.0	1	9.26	3.18
East South Central	4,671,000	20.5			47.8	22,930.2	20.2	1,703.5		1	.07
West South Central	3,406,000	31.3	8.9	3,515.5	47.2	25,137.6	7.0	2,776.6	1	7.15	.79
Mountain	5,649,500	10.8	3.8	401.1	45.7	14,017.7	1.1	2.1	1	35.00	.005
Pacific	2,555,000	18.8	24.3	2,323.5	61.8	14,645.4	15.6	179.7	1	6.30	.08
Continental United States	57,397,050	14.0	6.8	15,896.6	39.7	159,915.2	16.7	43,576.6	1	10.06	2.74
Territories	3,675			51.0		79.0		25.0	1	1.46	.46
Total	57,400,725	14.0	6.8	15,950.6	39.7	159,994.2	16.7	43,601.6	1	10.03	2.73
Pasture:											
New England	3,511,850	15.9	4.5	1,274.6	30.8	8,733.9	15.3	4,335.1	1	6.85	3.40
Middle Atlantic	8,367,000	7.1	3.2	933.6	67.2	19,839.2	13.7	4,044.9	1	21.25	4.33
South Atlantic	9,290,000	21.8	5.4	6,244.6	57.9	66,811.6	25.6	29,531.3	1	10.70	4.73
East North Central	19,351,000	11.2	5.3	1,105.9	21.3	23,192.2	16.9	11,823.4	1	20.99	10.70
West North Central	20,537,000	2.0	10.3	2,827.9	47.6	8,305.1	20.4	3,836.9	1	2.94	1.36
East South Central	16,838,000	11.6	10.3	5,868.1	31.4	30,321.1	11.6	10,373.0	1	8.57	1.77
West South Central	122,202,000	1.5	1.0	3,330.9	38.0	33,040.8	4.5	3,959.1	1	9.60	1.13
Mountain	939,300	5.9	35.2	793.7	42.5	1,189.8	10.6	8.1	1	1.49	.01
Pacific	2,210,000	21.0	57.5	5,792.1	48.3	11,354.2	6.8	207.9	1	1.96	.04
Continental United States	212,305,350	5.0	7.1	28,376.8	43.4	223,690.9	15.4	68,119.7	1	7.88	2.40
Territories	350,700	1.0	39.3	130.7	51.2	170.1	24.8	82.5	1	1.30	.63
Total	212,657,050	4.9	7.4	28,507.5	43.4	223,861.0	15.4	68,232.2	1	7.85	2.39

See footnotes at end of table, p. 129.

TABLE 117.—*All fertilizers: Planted acreage, percentage fertilized, rate of application and consumption of nitrogen, available phosphoric oxide, and potash, and nutrient ratio, by crops and regions and Territories, year ended June 30, 1950* [1]—Continued

Crop and region or Territory	Acreage		Nitrogen		Available phosphoric oxide		Potash		Nutrient ratio		
	Planted	Percentage fertilized	Rate per acre when used	Quantity used	Rate per acre when used	Quantity used	Rate per acre when used	Quantity used	N	P_2O_5	K_2O
Cover crops:	*Acres*	*Percent*	*Pounds*	*Tons*	*Pounds*	*Tons*	*Pounds*	*Tons*			
New England	35,000	5.0			59.5	52.1	61.6	53.9	1	1.03	
South Atlantic	2,138,000	93.6	2.6	2,083.4	17.2	17,208.4	7.1	7,108.5	1	8.26	3.41
West North Central	1,360,000	14.3	9.1	234.1	22.8	2,210.5			1	9.44	
East South Central	1,342,000	24.3	12.8	674.4	68.2	11,102.9	38.6	3,496.8	1	16.46	5.18
West South Central	2,329,000	42.9	2.0	963.1	39.4	19,682.4	5.5	2,471.9	1	20.44	2.57
Pacific	562,000	10.9			43.8	1,316.7	14.5	214.7	1		.16
Total	7,766,000	46.1	2.9	3,955.0	28.8	51,603.0	8.6	13,345.8	1	13.05	3.37
Dried beans and peas: [2]											
New England	5,000	96.0	31.9	133.2	64.0	267.3	45.1	188.3	1	2.01	1.41
Middle Atlantic	136,000	75.0	10.3	521.3	22.0	1,121.1	10.3	525.8	1	2.14	1.00
East North Central	503,000	80.0	3.0	595.1	23.6	4,739.0	11.2	2,248.3	1	7.96	3.78
West North Central	72,000	3.5			44.6	55.7	19.1	23.9	1		.43
West South Central	45,000	27.8	10.1	3.8	18.8	117.4	5.0	31.4	1	30.89	8.26
Mountain	679,000	14.3	13.7	669.3	27.5	1,336.8			1	2.19	
Pacific	477,000	8.4	30.0	771.0	49.2	991.1	21.4	38.6	1	1.28	.05
Total	1,917,000	31.7	8.2	2,637.0	25.9	8,628.4	11.5	3,056.3	1	3.27	1.16
Other: [3]											
New England	33,450			161.0		244.0		205.7	1	1.33	1.28
Middle Atlantic	98,266			91.7		1,620.7		331.2	1	17.67	3.61
South Atlantic	405,000			6,946.6		1,710.2		2,537.0	1	.35	.39
East North Central	40,500					557.2		1,146.8	1		2.06
West South Central	6,500			3.0		14.7		6.0	1	4.90	2.00
Mountain	800			269.3		12.7		50.7	1	.05	.19
Pacific	443,400			20,343.4		3,166.4		6,991.7	1	.15	.31
Continental United States	1,028,646			27,815.0		7,293.9		11,269.1	1	.29	.39
Territories	15,100			395.2		372.7		745.9	1	1.49	1.68
Total	1,043,746			28,210.2		7,868.6		12,014.2	1	.31	.41
Home gardens and other nonfarm uses: [4]											
New England				1,544.6		3,188.6		2,491.7	1	2.06	1.61
Middle Atlantic				2,571.2		7,775.3		4,492.2	1	3.02	1.75
South Atlantic				11,531.2		24,806.1		14,927.8	1	2.15	1.29
East North Central				3,980.1		8,870.6		6,607.2	1	2.23	1.66
West North Central				1,237.9		2,323.0		1,255.9	1	1.88	1.01
East South Central				5,311.9		11,172.0		7,187.2	1	2.10	1.41
West South Central				373.5		981.7		481.1	1	1.72	.81
Mountain				420.7		784.1		134.9	1	1.86	.32
Pacific				1,371.3		1,238.1		1,340.3	1	.90	.98
Continental United States				28,548.4		61,112.7		39,338.3	1	2.14	1.38
Territories				5.0		10.0		3.0	1	2.00	.60
Total				28,553.4		61,152.7		39,341.3	1	2.14	1.38
Totals: [5]											
New England	6,839,658	26.0	25.2	22,293	63.0	55,881	49.8	43,970	1	2.51	1.97
Middle Atlantic	26,136,531	35.9	11.3	66,491	50.7	237,729	25.3	118,571	1	3.58	1.78
South Atlantic	36,903,750	62.7	22.6	263,858	38.5	445,687	27.1	315,601	1	1.69	1.20
East North Central	81,189,700	38.0	6.0	90,529	25.2	387,611	19.8	291,843	1	4.28	3.22
West North Central	158,081,190	12.6	6.8	58,561	20.9	190,307	7.1	58,681	1	3.25	1.00
East South Central	41,669,409	41.9	26.0	187,585	32.3	277,389	16.4	127,721	1	1.48	.68
West South Central	177,137,830	7.3	15.3	91,107	23.0	160,061	8.4	49,252	1	1.76	.52
Mountain	26,868,710	8.0	21.8	21,701	38.2	38,496	12.5	2,109	1	1.77	.10
Pacific	18,028,500	22.2	58.8	121,077	57.1	73,980	31.8	21,174	1	.61	.17
Continental United States	572,831,589	21.3	17.2	927,001	32.7	1,867,115	19.6	1,028,922	1	2.01	1.11
Territories	1,237,176	48.2	367.0	49,898	72.2	21,300	116.7	31,799	1	.43	.70
Total	574,072,065	21.3	18.0	976,899	32.9	1,888,015	20.2	1,063,721	1	1.93	1.09

[1] Estimates based on an unpublished study by J. N. Lowe of reports from State committees of the U. S. Production and Marketing Administration, adjusted to conform with the total consumption of each nutrient in each region as reported by Scholl and Wallace (*220*). Often the acreages fertilized were not the same for each nutrient. Whichever acreage was largest was used to compute the percentage of the acreage that was fertilized. In computing the rate per acre for a given nutrient application, the actual acreage fertilized with that nutrient was used. Additional information is available on the consumption of fertilizers by crops for California (*38, 40*) and Delaware (*103*).

[2] For grain, forage, silage, and sirup.

[3] Including melons, sweet corn, and sweetpotatoes, but not white potatoes.

[4] Excluding peanuts, but including coffee in Hawaii and Puerto Rico.

[5] Excluding soybeans, velvetbeans, and cowpeas, but including mung beans and garbanzos.

[6] Popcorn, broomcorn, seeds, cowpeas, hops, mint, velvetbeans, mushrooms, commercial flowers, and nursery plants.

[7] Lawns, parks, airports, etc., and vegetable and flower gardens for home use.

[8] Exclusive of home gardens and other nonfarm uses.

TABLE 118.—*All fertilizers: Average retail price per ton of fertilizer and per unit (20 pounds) of nutrients, expenditures for fertilizers by consumers, amounts paid by Government toward cost of fertilizers used in its farm programs, total retail value, and index numbers of prices paid by farmers, decennial years 1880–1910 and annually 1910–51* [1]

Calendar year	Average retail price		Consumer expenditures [4]	Government contributions [5]	Total retail value [6]	Index number of prices paid [7]
	Per ton of fertilizer [2]	Per unit of nutrients [3]				
	Dollars	*Dollars*	*Million dollars*	*Million dollars*	*Million dollars*	
1880	41.17	2.98	31	0	31	----------
1890	32.44	2.29	45	0	45	----------
1900	26.51	1.81	71	0	71	----------
1910	28.97	1.87	158	0	158	98
1911	29.11	1.89	175	0	175	98
1912	28.49	1.85	164	0	164	100
1913	28.18	1.83	179	0	179	101
1914	28.34	1.84	201	0	201	103
1915	32.74	2.14	174	0	174	108
1916	36.35	2.56	186	0	186	123
1917	34.58	2.60	205	0	205	136
1918	47.81	3.65	309	0	309	172
1919	66.68	4.33	402	0	402	182
1920	57.97	3.74	416	0	416	181
1921	52.61	3.33	256	0	256	152
1922	39.76	2.47	225	0	225	127
1923	39.28	2.41	253	0	253	134
1924	37.37	2.26	255	0	255	126
1925	38.34	2.32	281	0	281	139
1926	36.58	2.18	268	0	268	138
1927	34.78	2.05	238	0	238	120
1928	36.93	2.11	295	0	295	131
1929	34.70	1.97	277	0	277	130
1930	33.77	1.89	276	0	276	126
1931	29.98	1.67	189	0	189	114
1932	25.60	1.46	111	0	111	100
1933	23.81	1.35	116	0	116	93
1934	28.30	1.57	157	0	157	105
1935	28.21	1.53	177	0	177	104
1936	29.76	1.59	206	1	207	98
1937	31.33	1.65	253	2	255	103
1938	30.65	1.58	226	3	229	102
1939	30.93	1.57	233	6	239	101
1940	29.63	1.47	237	10	247	98
1941	30.12	1.53	266	14	280	98
1942	34.27	1.72	328	19	347	109
1943	38.47	1.90	413	30	443	116
1944	37.64	1.88	439	52	491	118
1945	40.25	2.03	504	52	556	120
1946	36.90	1.83	536	50	586	121
1947	38.52	1.93	606	51	657	134
1948	43.28	2.11	715	31	746	146
1949	45.85	2.14	751	56	807	150
1950	45.97	2.07	828	60	888	144
1951	45.66	2.03	880	61	941	152

[1] Continental United States.

[2] Total retail value divided by the appropriate tonnage from table 106. Although table 106 does not give tonnages for continental United States for the years 1911–19, such values were obtained in the manner indicated in the table.

[3] The total retail value divided by the total nutrient tonnage given in table 105, minus tonnages of nutrients used in the Territories, multiplied by 100, and divided by the tonnages of fertilizers for the corresponding years shown in table 106.

[4] 1880–1900, estimated; 1910–51, Mehring, Bennett, and Adams (*143*).

[5] 1936–43, estimated retail value of fertilizers distributed by Government agencies. 1944–51, the reported value of fertilizers distributed by the U. S. Tennessee Valley Authority (*523*) for test demonstration purposes (years ended June 30) plus the value of fertilizers given to farmers or the credit given farmers for fertilizers used in the agricultural conservation program (*260a, 512*); the part of the cost borne by farmers for the fertilizers is not included.

[6] The sum of the values in the preceding 2 columns.

[7] 1910–14 average = 100. Table 6 of the Oct. 30, 1951, issue of "Agricultural Prices" (*265*). These values do not correspond closely with the average retail prices given in the second column, since the price index is based on a fixed proportion of each of the principal kinds of fertilizer as of Apr. 15 and Sept. 15 of each year.

TABLE 119.—*All fertilizers: Farm expenditures for fertilizer, selected years 1879–1944; and average per farm reporting its use, selected years 1909–44, by regions and States* [1]

State and region	Total expenditures								Average expenditures per farm				
	1879	1889	1899	1909 [2]	1919 [2]	1929 [3]	1939	1944	1909	1919	1929	1939	1944
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Maine	212,135	456,515	819,680	4,069,479	7,759,067	7,287,869	5,186,780	9,472,377	102	343	304	240	383
New Hampshire	185,393	246,293	367,980	512,580	526,180	439,914	294,920	613,360	33	60	63	45	67
Vermont	127,670	217,397	447,065	370,752	857,273	681,259	548,797	918,161	30	59	57	50	69
Massachusetts	653,422	896,560	1,320,600	1,965,082	3,906,733	3,014,621	1,862,680	2,632,615	91	230	211	139	177
Rhode Island	140,318	172,900	264,140	335,103	379,786	336,196	282,936	446,130	101	165	178	183	243
Connecticut	497,448	609,649	1,078,240	1,954,163	4,893,658	3,053,387	1,814,794	3,741,000	125	386	385	205	325
New England	1,796,386	2,599,314	4,297,705	9,407,759	18,322,697	15,413,246	9,990,907	17,823,652	82	235	225	159	237
New York	2,715,477	3,627,726	4,493,050	7,142,265	15,007,371	11,505,537	8,841,464	15,921,268	63	133	127	112	197
New Jersey	1,601,609	1,837,719	2,165,320	4,277,604	10,742,682	6,583,368	4,855,959	7,013,168	181	472	398	322	446
Pennsylvania	3,525,330	3,384,310	4,085,920	6,801,005	15,628,341	12,113,421	8,976,874	14,759,409	52	108	103	83	134
Delaware	307,228	460,465	539,040	864,577	1,222,329	1,300,571	791,741	1,244,708	96	134	172	133	234
Maryland	2,838,465	2,419,826	2,618,890	3,387,634	7,610,478	5,525,079	3,904,717	6,316,507	91	194	164	132	214
District of Columbia	22,352	16,651	22,600	10,975	23,267	18,159	3,465	.....	220	201	249	84	.....
West Virginia	170,300	210,767	405,270	528,937	1,709,546	1,161,087	1,301,135	1,971,611	22	48	38	20	38
Middle Atlantic	11,346,767	11,957,464	14,930,090	23,019,597	52,004,614	38,207,222	28,675,355	47,226,671	68	143	154	101	161
Virginia	2,137,283	2,320,260	3,681,790	6,932,455	17,277,705	11,780,935	8,964,129	14,497,270	92	128	107	77	119
North Carolina	2,111,767	2,882,238	4,479,630	12,262,533	48,796,694	34,686,830	26,528,959	40,635,162	67	213	148	111	172
South Carolina	2,059,969	3,867,418	4,494,410	15,162,017	52,546,795	22,080,531	15,145,150	24,331,832	108	298	159	120	210
Georgia	4,346,920	5,724,187	5,738,520	16,860,149	46,196,434	27,533,063	18,647,880	31,198,585	71	165	127	96	181
Florida	72,642	857,327	753,120	3,609,853	10,316,920	15,152,647	13,072,255	20,632,785	121	357	381	311	563
South Atlantic	11,328,581	15,651,430	19,146,870	54,827,007	175,134,557	111,234,006	82,358,373	131,295,634	86	206	151	115	192
Ohio	550,029	1,602,869	2,665,470	4,180,485	13,206,018	11,028,050	9,787,074	17,897,909	35	80	84	67	119
Indiana	340,582	777,727	1,553,710	2,189,695	8,734,698	7,054,319	5,946,220	13,631,492	40	88	85	66	126
Illinois	174,277	124,977	890,660	615,594	2,996,403	3,593,825	1,713,369	7,600,497	55	133	117	90	148
Michigan	300,995	173,017	492,360	945,364	4,872,543	5,474,121	4,438,157	10,263,779	30	74	76	58	108
Wisconsin	178,892	105,192	294,320	127,753	779,750	2,133,377	1,575,276	8,071,601	43	100	63	47	91
East North Central	1,544,775	2,783,782	5,896,520	8,058,881	30,589,412	29,283,692	23,460,096	57,465,278	37	85	83	64	116
Minnesota	93,250	61,578	251,120	74,653	432,480	714,055	491,667	2,934,052	52	143	76	68	89
Iowa	98,567	86,843	337,190	109,570	593,537	1,171,393	351,022	3,656,447	62	188	74	55	117
Missouri	109,724	65,705	370,630	671,073	3,941,488	2,030,492	1,568,614	5,237,904	36	83	57	45	83
North Dakota	.....	8,923	13,855	10,003	119,502	51,858	63,328	433,080	57	245	91	97	389
South Dakota	.....	15,675	12,940	11,294	34,466	21,452	13,255	22,453	61	197	67	52	60
Nebraska	20,794	10,269	153,080	31,021	64,752	53,709	74,283	105,349	84	136	78	69	92
Kansas	51,713	25,740	268,360	75,602	979,037	428,622	419,832	1,593,759	53	158	78	62	91
West North Central	384,048	283,733	1,407,175	983,216	6,168,462	4,471,581	2,982,001	13,983,044	41	101	66	52	95
Kentucky	145,674	317,231	908,250	1,360,720	3,597,449	2,598,392	3,007,162	7,518,298	24	41	35	29	62
Tennessee	157,442	361,097	898,070	1,216,296	3,525,133	4,110,066	3,405,875	7,825,770	23	42	42	30	63
Alabama	1,200,956	2,421,648	2,599,290	7,630,952	14,066,108	21,829,959	13,435,411	21,646,749	47	80	105	68	128
Mississippi	123,253	789,268	932,098	2,703,271	4,288,165	11,555,349	8,883,948	14,483,124	34	60	76	50	100
East South Central	1,627,325	3,889,244	5,337,708	12,901,239	25,476,855	40,093,966	28,702,396	51,473,941	37	61	76	49	92
Arkansas	56,314	93,939	172,510	596,553	2,572,678	4,006,637	2,098,891	5,616,164	27	62	63	38	71
Louisiana	278,305	906,348	1,076,890	2,091,919	3,840,469	5,228,630	3,956,530	7,374,360	91	102	79	50	115
Oklahoma	.....	3,817	.....	29,092	452,492	252,511	141,237	813,948	47	185	57	23	55
Texas	74,797	58,665	124,710	595,363	1,831,207	5,631,303	2,493,564	6,275,103	37	67	74	44	87
West South Central	409,416	1,062,769	1,374,116	3,225,927	8,896,846	15,719,081	8,690,222	20,079,575	53	80	71	44	88
Montana	.....	4,757	3,940	12,323	126,232	29,947	184,476	397,942	138	279	99	74	109
Idaho	.....	2,137	17,150	20,737	106,121	80,664	329,362	1,151,387	87	185	48	54	118
Wyoming	.....	1,548	12,700	5,302	8,489	25,423	92,535	124,091	161	154	90	78	91
Colorado	5,195	25,074	23,225	61,113	294,448	165,188	165,105	688,321	109	249	111	63	131
New Mexico	10,733	9,217	2,880	25,377	113,483	98,520	112,387	259,429	31	78	117	90	124
Arizona	.....	10	2,021	6,080	40,892	176,021	275,475	1,674,362	184	325	336	401	1,345
Utah	11,394	23,211	14,300	20,037	108,956	48,846	123,873	392,500	35	107	76	32	69
Nevada	2,526	2,019	.....	8,379	9,897	5,530	6,418	125,510	239	171	135	60	252
Mountain	29,848	67,973	77,116	159,342	808,518	630,169	1,289,631	4,813,512	67	164	108	70	163
Washington	.....	11,533	29,165	87,023	525,037	1,194,379	827,287	2,819,671	48	144	124	76	167
Oregon	10,519	13,370	27,395	68,557	489,524	669,810	681,602	2,017,004	24	87	82	78	109
California	108,732	148,886	937,050	2,143,993	8,182,998	14,041,521	8,270,089	25,023,773	287	497	593	292	639
Pacific	119,251	173,889	993,610	2,299,573	9,198,159	16,005,710	9,778,978	29,860,448	189	357	384	204	439
United States	28,586,397	38,469,698	53,430,910	114,882,541	326,399,520	271,058,673	195,927,959	374,021,755	63	144	117	84	145

[1] U. S. Bureau of the Census (277). No data are available for 1944–54. Data for 1954 was published in Vol. III, Part 10, of the 1954 "Census of Agriculture."

[2] Includes amounts spent for manure.

[3] Includes amounts spent for manure and liming materials.

Fertilizers in Agricultural Conservation Programs

TABLE 120.—*Agricultural conservation programs: Materials used in the programs, 1936–53* [1]

Program year [2]	Superphosphate [3]	Phosphate rock [4]	Colloidal phosphate [4]	Basic slag [5]	Potash materials [6]	Gypsum and sulfur [7]	Trace-nutrient materials					Limestone [13]	Other
							Boron [8]	Manganese [9]	Copper [10]	Zinc [11]	Magnesium [12]		
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1936	121,599	----------	----------	----------	0	100	0	0	0	0	0	3,621,866	----------
1937	293,059	----------	----------	----------	6,905	586	0	0	0	0	0	5,026,305	----------
1938	397,398	----------	----------	----------	12,050	3,543	0	0	0	0	0	5,025,280	----------
1939	500,509	----------	----------	----------	7,415	27,353	0	0	0	0	0	5,796,175	----------
1940	748,873	----------	----------	----------	9,283	62,000	0	0	0	0	0	12,007,502	----------
1941	[14] 900,414	([15])	([15])	([15])	13,390	68,597	1	0	0	0	0	13,530,499	----------
1942	[14] 1,073,344	([15])	([15])	([15])	34,006	94,108	17	0	0	0	0	18,971,539	----------
1943	[14] 1,872,780	([15])	([15])	([15])	82,166	99,109	15	0	0	0	0	19,030,247	----------
1944	[14] 1,949,303	([15])	([15])	([15])	0	291,146	44	0	0	0	0	23,828,480	----------
1945	[14] 2,401,345	([15])	([15])	([15])	119,472	586,546	63	0	0	0	0	21,338,172	----------
1946	2,414,243	399,969	----------	191,810	142,345	281,750	42	0	0	0	0	28,580,189	----------
1947	2,304,789	623,901	4,704	178,102	174,698	314,689	45	2,102	1,577	305	0	29,285,077	[16] 20,079
1948	1,937,017	653,803	6,589	181,565	147,053	110,157	29	615	497	132	0	22,284,642	----------
1949	2,050,659	718,934	9,477	253,136	250,988	152,037	38	1,908	1,229	392	7,172	24,433,957	----------
1950	2,089,281	804,512	6,468	219,520	310,645	80,470	43	2,285	1,636	493	8,172	23,303,710	----------
1951	2,482,665	987,091	10,319	279,135	461,294	69,625	54	2,492	1,634	535	9,628	21,452,070	----------
1952	2,377,245	1,121,818	6,481	250,054	519,534	63,318	44	6	16	3	6	21,437,047	[17] 3,568
1953	1,789,826	741,308	2,020	130,113	455,091	131,277	22	270	201	43	3,208	15,136,451	[18] 1,544

[1] U. S. Agricultural Adjustment Agency (*260*) and U. S. Production and Marketing Administration (*312*, *315*), and Agricultural Conservation Program Service (*260a*). Includes materials used in Alaska, Hawaii, and Puerto Rico.

[2] Length of the program year varies from State to State and year to year and does not necessarily coincide with calendar year.

[3] Basis, 20-percent superphosphate; includes phosphates in mixed fertilizers and all phosphatic materials except those given in other columns.

[4] Basis, 28-percent total phosphoric oxide material.

[5] Basis, 10-percent total phosphoric oxide material; the bulk was used in Alabama, Georgia, Mississippi, and Tennessee.

[6] Basis, 50-percent potassium chloride; includes potash used in mixed fertilizers. Since 1940 a large part of the potash was in mixed fertilizers.

[7] Basis, 18-percent sulfur-containing material; used largely in the West.

[8] Basis, 100-percent boron equivalent.

[9] Expressed as manganese oxide (MnO) equivalent; 1947 and 1948, reported originally as sulfate but converted to the oxide equivalent.

[10] Expressed as copper oxide (CuO) equivalent; 1947 and 1948, reported originally as sulfate but converted to the oxide equivalent.

[11] Expressed as zinc oxide (ZnO) equivalent; 1947 and 1948, reported originally as sulfate but converted to the oxide equivalent.

[12] Expressed as magnesium oxide (MgO) equivalent.

[13] Basis, standard ground limestone equivalent, as specified by the individual States.

[14] Includes the available *phosphoric oxide* of rock phosphate, colloidal phosphate, and basic slag converted to the equivalent tonnage of 20-percent superphosphate.

[15] Included with superphosphate.

[16] Comprising 20,077 tons of magnesium sulfate or sulfate of potash magnesia and 2 tons of iron oxide.

[17] Comprising 2,688 tons of heat-fused phosphate, 20-percent available *phosphoric oxide* equivalent, and 880 tons of nitrogen used in Puerto Rico in mixed goods.

[18] Comprising 1,544 tons of heat-fused phosphate, 20-percent available phosphoric oxide equivalent.

TABLE 121.—*Agricultural conservation programs: Materials used in the 1953 program year, by regions and States and Territories* [1]

State and region or Territory	Superphosphate [2]	Phosphate rock [3]	Colloidal phosphate [3]	Basic slag [4]	Heat-fused phosphate [5]	Potash materials [6]	Gypsum and sulfur [7]	Limestone [8]	Secondary- and trace-nutrient materials
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Pounds*
Maine	15,613	0	0	0	0	4,028	0	49,835	[9] 8,424
New Hampshire	8,637	0	0	0	0	2,619	0	22,753	0
Vermont	27,475	0	0	0	0	9,700	0	63,032	[10] 1,867
Massachusetts	12,838	10	0	0	0	4,688	0	47,438	0
Rhode Island	1,425	0	0	0	0	730	0	6,013	0
Connecticut	8,051	0	0	0	0	3,934	0	37,983	0
New England	74,039	10	0	0	0	25,699	0	227,054	10,291
New York	80,461	0	0	0	0	8,935	0	537,653	0
New Jersey	12,780	0	0	0	0	4,686	1	63,183	0
Pennsylvania	63,444	0	0	0	0	13,024	0	836,064	0
Delaware	2,713	0	0	0	0	1,061	0	43,581	0
Maryland	16,860	0	0	0	0	5,162	0	195,822	0
West Virginia	23,437	0	0	0	0	4,348	0	129,210	0
Middle Atlantic	199,695	0	0	0	0	37,216	1	1,805,513	0
Virginia	100,137	0	0	0	0	38,628	0	533,473	0
North Carolina	82,941	0	0	2,513	0	25,938	0	288,578	0
South Carolina	33,451	0	0	7,454	0	6,755	0	142,287	0
Georgia	81,118	279	0	12,156	0	27,099	0	155,112	0
Florida	38,557	2,057	559	445	0	13,883	2,625	172,184	[11] 7,411,592
South Atlantic	336,204	2,336	559	22,568	0	112,303	2,625	1,291,614	7,411,592
Ohio	72,701	977	0	0	0	25,878	0	1,499,867	0
Indiana	71,081	18,560	0	0	0	27,709	0	1,635,698	0
Illinois	39,835	406,343	1,242	0	0	38,128	0	1,509,980	0
Michigan	75,747	1,202	0	0	0	24,593	0	480,161	0
Wisconsin	63,473	6,621	0	0	0	46,022	0	1,195,826	[10] 4,517
East North Central	322,837	523,703	1,242	0	0	162,330	0	6,321,532	4,517
Minnesota	81,605	0	0	0	0	11,740	2,191	480,858	0
Iowa	144,631	14,607	186	0	0	8,128	0	1,220,606	0
Missouri	63,081	158,016	145	0	0	15,466	0	1,845,826	0
North Dakota	10,001	0	0	0	0	0	0	0	0
South Dakota	8,538	0	0	0	0	0	0	0	0
Nebraska	22,052	0	0	0	0	0	0	141,172	0
Kansas	10,929	1,945	0	0	0	64	0	380,139	0
West North Central	340,837	174,568	331	0	0	35,398	2,191	4,068,601	0
Kentucky	84,953	6,182	0	0	844	12,870	0	573,564	0
Tennessee	68,123	0	0	9,445	710	13,508	0	333,035	[10] 10,251
Alabama	59,109	0	0	38,911	0	19,953	0	40,722	0
Mississippi	28,967	349	474	52,911	0	12,701	0	73,975	0
East South Central	241,242	6,531	474	101,267	1,554	59,032	0	1,021,296	10,251
Arkansas	39,005	727	0	0	0	4,779	0	117,731	0
Louisiana	26,109	2,226	0	6,278	0	6,978	0	52,987	0
Oklahoma	24,212	17,204	0	0	0	1,580	228	116,310	0
Texas	102,049	13,919	14	0	0	6,846	2,581	35,615	0
West South Central	182,975	34,076	14	6,278	0	20,183	2,809	322,643	0
Montana	12,628	0	0	0	0	0	579	0	[10] 340
Idaho	3,787	0	0	0	0	0	3,744	0	[10] 9,799
Wyoming	6,191	0	0	0	0	0	0	0	0
Colorado	13,836	0	0	0	0	63	201	0	0
New Mexico	0	0	0	0	0	0	0	0	0
Arizona	1,055	0	0	0	0	0	1,667	0	0
Utah	5,294	0	0	0	0	0	100	0	0
Nevada	762	0	0	0	0	0	1,620	0	0
Mountain	43,553	0	0	0	0	63	7,911	0	10,139
Washington	15,353	0	0	0	0	1,264	2,544	21,372	[12] 36,575
Oregon	1,673	0	0	0	0	0	0	43,827	0
California	25,912	0	0	0	0	0	113,196	7,049	0
Pacific	42,938	0	0	0	0	1,264	115,740	72,248	36,575
Continental United States	1,784,320	741,224	2,620	130,113	1,554	453,488	131,277	15,130,501	7,483,355
Alaska	44	0	0	0	0	2	0	0	0
Hawaii	109	84	0	0	0	26	0	627	0
Puerto Rico	5,267	0	0	0	0	1,575	0	5,323	0
Territories	5,500	84	0	0	0	1,603	0	5,950	0
Total	1,789,820	741,308	2,620	130,113	1,554	455,091	131,277	15,136,451	7,483,355

[1] U. S. Agricultural Conservation Program Service (*260a*). Length of the program year varies from State to State and year to year and does not necessarily coincide with calendar year. Part of the cost to the farmer was given in the form of a cash reimbursement, a purchase order, or material of equal value distributed under contract for approved uses of materials.

[2] Basis, 20-percent superphosphate; includes phosphates in mixed fertilizers and all phosphatic materials except those given in other columns.

[3] Basis, 28-percent total phosphoric oxide material.

[4] Basis, 10-percent total phosphoric oxide material.

[5] Basis, 20-percent total phosphoric oxide material.

[6] Basis, 50-percent potassium chloride; includes potash used in mixed fertilizers.

[7] Basis, 18-percent sulfur.

[8] Basis, standard ground limestone equivalent, as specified by the individual States.

[9] Magnesium materials, expressed as magnesium oxide (MgO) equivalent.

[10] Boron materials, expressed as 100-percent boron equivalent.

[11] Comprising 539,290 pounds of manganese materials, 402,138 pounds of copper materials, 60,716 pounds of zinc materials, and 6,403,438 pounds of magnesium materials, expressed as the oxides (MnO, CuO, ZnO, and MgO, respectively).

[12] Comprising 16,477 pounds of boron materials, expressed as 100-percent boron equivalent, and 20,098 pounds of zinc material, expressed as the oxide, ZnO.

TABLE 122.—*Agricultural conservation programs: Available phosphoric oxide and potash used, by regions and States and Territories, program years 1946–53* [1]

State and region or Territory	1946		1947		1948		1949		1950		1951		1952		1953	
	Available phosphoric oxide	Potash	Available phosphoric oxide	Potash	Available phosphoric oxide	Potash	Available phosphoric oxide	Potash	Available phosphoric oxide	Potash	Available phosphoric oxide	Potash	Available phosphoric oxide	Potash	Available phosphoric oxide	Potash
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	3,361	1,354	3,075	968	1,705	764	3,113	1,416	4,517	3,038	4,840	3,386	3,725	2,580	3,123	2,014
New Hampshire	2,062	495	2,007	431	1,656	380	2,134	747	2,867	1,354	2,755	1,342	2,023	1,420	1,727	1,310
Vermont	6,119	1,064	4,598	1,328	4,907	896	8,862	2,278	9,280	3,267	9,137	3,859	6,430	4,441	5,495	4,850
Massachusetts	2,907	1,199	2,661	1,378	2,039	1,558	3,199	1,780	3,637	2,166	3,563	2,482	2,709	2,288	2,508	2,344
Rhode Island	451	30	370	66	326	50	391	167	420	194	488	232	328	300	285	365
Connecticut	1,841	625	1,416	672	1,605	646	2,659	1,172	3,376	1,823	3,415	1,972	2,142	2,148	1,610	1,967
New England	16,741	4,683	14,427	4,843	12,238	4,294	20,358	7,560	24,097	11,842	24,198	13,253	17,357	13,177	14,808	12,850
New York	28,559	548	27,397	364	19,263	252	25,970	754	30,065	1,146	29,976	3,600	26,667	4,488	16,092	4,468
New Jersey	5,048	1,884	3,997	2,060	2,778	1,418	3,102	2,334	3,444	2,680	3,599	3,069	3,068	2,762	2,556	2,343
Pennsylvania	11,756	0	11,274	0	11,145	39	15,186	936	16,919	1,363	16,478	3,353	16,331	5,914	12,680	6,512
Delaware	555	206	694	270	771	0	769	0	847	600	945	771	596	550	543	530
Maryland	4,940	1,104	4,646	1,182	3,998	1,200	3,663	674	5,260	1,024	4,833	1,445	4,141	2,001	3,372	2,581
West Virginia	8,471	0	8,791	246	5,525	120	9,413	614	10,993	1,224	10,068	2,367	7,925	3,032	4,687	2,174
Middle Atlantic	59,329	3,742	56,799	4,072	43,780	3,029	58,103	5,312	67,528	8,037	65,809	14,605	58,728	18,747	39,939	18,608
Virginia	28,565	1,297	26,369	2,550	16,638	2,718	24,248	5,031	29,145	10,417	29,480	15,742	27,260	20,338	20,027	19,314
North Carolina	14,206	1,717	15,871	2,704	12,139	2,164	20,466	9,310	23,367	14,642	23,402	18,481	20,931	17,651	16,840	12,969
South Carolina	8,637	567	7,458	301	10,290	482	14,184	662	14,629	920	9,144	1,130	7,925	2,190	7,436	3,378
Georgia	23,908	3,524	25,674	4,436	15,987	3,884	27,273	6,251	27,458	10,082	24,146	13,586	18,418	12,018	17,448	13,540
Florida	20,564	862	17,068	1,119	9,751	1,388	13,767	1,834	15,200	3,559	10,963	6,039	12,869	9,297	7,834	6,942
South Atlantic	95,880	7,961	92,440	11,110	64,815	10,636	99,938	23,088	109,799	39,620	97,135	54,958	87,412	61,494	69,585	56,152
Ohio	28,333	12,269	32,641	13,882	33,240	15,828	34,167	18,279	13,588	6,334	15,888	9,964	16,718	12,392	14,570	12,939
Indiana	21,503	10,445	25,499	11,624	11,803	5,228	13,737	6,449	14,921	7,888	15,526	11,192	17,041	14,006	14,773	13,854
Illinois	21,669	2,880	25,555	4,354	20,030	1,359	22,968	4,501	24,128	6,165	26,027	10,546	31,739	14,291	22,895	19,064
Michigan	26,430	9,237	24,607	10,200	13,643	3,530	21,954	9,606	22,515	10,650	21,085	13,646	21,030	15,296	15,185	12,206
Wisconsin	23,487	11,411	22,209	12,175	23,630	13,848	23,989	18,736	24,689	21,010	25,805	27,070	24,012	25,604	12,893	23,011
East North Central	121,362	46,242	130,511	52,235	102,436	39,823	116,833	57,571	99,841	52,297	104,331	72,418	110,540	81,589	80,316	81,164
Minnesota	12,632	860	10,693	1,708	14,931	2,058	21,975	3,720	22,558	4,488	10,991	4,597	14,848	5,825	16,321	5,870
Iowa	18,517	1,153	17,040	2,432	19,575	2,583	26,110	2,729	27,844	2,370	30,685	3,642	32,760	3,518	29,370	4,064
Missouri	21,110	2,309	17,726	4,208	14,149	4,294	20,735	6,826	24,358	7,719	25,628	10,110	25,974	11,914	17,361	7,733
North Dakota	216	0	222	0	369	0	551	0	687	0	964	0	1,399	0	2,000	0
South Dakota	109	10	226	21	657	14	616	0	680	0	1,062	0	2,086	0	1,708	0
Nebraska	0	0	0	0	0	0	1,825	0	2,474	0	2,944	0	4,458	0	4,410	0
Kansas	3,623	0	4,362	0	2,815	0	7,705	0	7,438	0	4,141	0	3,304	5	2,244	32
West North Central	56,207	4,332	50,179	8,389	52,496	8,949	79,517	13,275	86,039	14,577	76,365	18,349	84,829	21,262	73,414	17,699
Kentucky	25,844	778	25,401	1,640	24,100	590	30,776	1,336	35,638	2,494	26,410	7,527	25,325	10,144	17,345	6,435
Tennessee	25,244	703	28,206	2,512	18,576	1,486	30,536	2,736	29,694	4,069	25,427	7,675	22,095	10,088	14,711	6,754
Alabama	25,250	810	21,139	630	24,933	2,935	30,504	7,434	33,110	10,339	37,039	16,040	32,760	16,655	15,731	9,976
Mississippi	21,960	201	16,713	197	19,110	192	21,603	5,878	14,818	4,862	19,938	11,422	20,750	10,688	11,109	6,350
East South Central	98,328	2,492	91,459	4,979	86,719	4,603	113,419	17,384	113,260	21,764	108,814	44,664	100,930	47,775	58,896	29,515
Arkansas	7,123	384	11,286	442	8,048	330	14,167	750	16,298	1,800	9,701	2,793	9,236	2,998	6,143	2,390
Louisiana	7,517	296	6,430	193	7,280	760	7,064	1,328	7,778	2,310	8,773	4,044	9,455	5,334	5,916	3,489
Oklahoma	2,468	0	2,942	0	4,218	0	6,483	2	7,000	171	8,614	1,133	8,286	1,832	5,358	796
Texas	20,307	252	23,429	212	32,111	389	41,635	1,250	34,558	2,136	32,278	3,532	27,258	4,190	20,828	3,423
West South Central	37,415	932	44,087	847	51,657	1,479	69,349	3,330	65,634	6,417	59,366	11,502	54,235	14,354	38,245	10,092

Montana	1,472	0	1,794	0	1,047	0	1,079	0	1,850	0	2,107	0	2,340	0	2,526	0
Idaho	3,912	0	3,711	0	2,509	0	2,705	0	1,855	0	1,696	0	1,350	0	757	0
Wyoming	475	0	585	<.5	464	1	588	4	754	0	909	0	1,444	0	1,238	0
Colorado	2,401	42	2,588	100	1,699	23	1,962	32	2,171	16	2,079	24	2,749	41	2,767	32
New Mexico	2,040	0	1,951	0	1,280	0	1,769	0	431	0	265	0	474	0	0	0
Arizona	1,187	0	1,034	0	2,047	0	958	0	635	0	833	0	715	0	211	0
Utah	1,555	0	2,008	0	0	0	1,619	0	1,242	0	1,167	0	1,429	0	1,059	0
Nevada	118	0	145	0	111	0	205	0	250	0	196	0	176	0	152	0
Mountain	13,166	42	13,816	100	9,157	24	10,885	36	9,197	16	9,252	24	10,677	41	8,710	32
Washington	4,031	746	4,304	770	2,699	682	3,150	560	3,195	502	3,311	589	3,684	632	3,071	632
Oregon	2,636	0	2,975	0	881	0	1,040	0	1,217	0	543	0	471	0	335	0
California	8,664	0	7,963	0	2,001	0	4,273	0	4,143	0	4,963	0	5,034	0	5,182	0
Pacific	15,331	746	15,242	770	5,581	682	8,463	560	8,555	502	8,817	589	9,189	632	8,588	632
Continental United States	513,759	71,172	509,260	87,345	428,879	73,519	576,867	128,116	583,950	155,072	554,177	230,382	533,897	259,071	392,501	226,744
Territories	2,214	----------	372	4	494	7	432	378	188	250	192	285	943	696	1,102	802
Total	515,973	71,172	509,632	87,349	429,373	73,526	577,299	128,494	584,138	155,322	554,369	230,647	534,840	259,767	393,603	227,546

[1] U. S. Production and Marketing Administration (*312*) and U. S. Agricuttural Conservation Program Service (*260a*). The available phosphoric oxide was computed by adding 20 percent of superphosphate, 3 percent of rock and colloidal phosphate, and 10 percent of basic slag tonnages reported in the individual statistical summaries for each of the years 1946 to 1951. The potash was computed by taking 50 percent of the tonnages of 50-percent potassium chloride equivalents published annually. Length of the program year varies from State to State and year to year and does not necessarily coincide with calendar year.

United States Tennessee Valley Authority Fertiliz ers

TABLE 123.—*United States Tennessee Valley Authority: Annual production of selected fertilizer materials, years ended June 30, 1935–54* [1]

Year ended June 30	Concentrated superphosphate	Calcium metaphosphate	Dicalcium phosphate [2]	Fused tricalcium phosphate [3]	Ammonium nitrate
	Tons available P_2O_5	*Tons available P_2O_5*	*Tons total P_2O_5*	*Tons total P_2O_5*	*Tons N*
1935	8,100				
1936	11,007				
1937	14,985				
1938	21,746	2,787			
1939	31,777	2,804			
1940	36,553	2,234			
1941	45,880	6,936			
1942	26,460	7,341			
1943	27,092	4,255			4,769
1944	22,070	1,840	4,148		43,772
1945	10,431	2,602	2,987		37,325
1946	32,622	5,003	11,502	4,558	51,244
1947	60,163	4,024	10,037	7,676	51,697
1948	70,950	3,908	11,057	6,731	51,875
1949	74,402	2,041	16,995	4,547	[4] 50,665
1950	60,375	10,264	22,934	4,777	45,873
1951	69,730	19,657	147	5,110	45,517
1952	62,870	20,739		4,306	66,309
1953	63,986	26,097		5,062	66,052
1954	49,293	34,907		7,249	63,357

[1] U. S. Tennessee Valley Authority (*323*); the published reports often show production in tons of materials; the equivalent plant-nutrient contents were supplied in a private communication from the Office of Chemical Engineering, U. S. Tennessee Valley Authority.

[2] Used primarily as phosphorus supplement in animal feeds.

[3] The product of heating phosphate rock at high temperatures in the presence of silica and water vapor; contains 28 to 29 percent total phosphoric oxide.

[4] Includes 680 tons produced from ammonia repaid by the Army.

TABLE 124.—*United States Tennessee Valley Authority test demonstration program: Fertilizer materials used and their primary-nutrient content, years ended June 30, 1935–54*

Year ended June 30	Materials used [1]								Primary-nutrient consumption [5]		
	Concentrated superphosphate	Calcium metaphosphate	Fused tricalcium phosphate [2]	Ammonium nitrate	Potash-phosphate ash [3]	Quenched slag [4]	Other	Total	Nitrogen	Available phosphoric oxide	Potash
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1935	1,986							1,986		827	
1936	29,352							29,352		11,858	
1937	21,625							21,625		9,385	
1938	13,583	255						13,853		6,522	
1939	14,801	3,462	3			1,227		19,583		9,034	
1940	19,886	7,293	1			437		27,617		13,587	
1941	18,353	8,949	570			180		28,052		14,654	
1942	19,616	11,007	488			309		31,420		15,841	
1943	22,522	7,150	265	5,008		952	[6] 284	37,090	1,972	14,921	45
1944	30,926	971	552	9,453	110	4,493	[7] 400	47,363	3,164	14,733	17
1945	22,754	5,953	258	8,233	986	2,236	[8] 41	40,461	2,685	14,437	153
1946	24,692	7,049	10,307	4,275	1,119	935		48,376	1,389	18,962	168
1947	19,480	9,232	28,149		23	340		56,861		22,500	4
1948	4,002	5,076	25,033		269	110		34,490		12,404	40
1949	4,127	4,712	18,092					26,931		12,468	
1950	4,137	9,273	17,528					30,938		12,818	
1951	3,752	7,114	18,411			3,399		32,676		11,058	
1952	412	5,787	9,374	52		3,103		18,728	17	6,674	
1953	404	5,017	13,021	1,408		3,036		23,504	473	7,142	
1954	147	3,715	10,868	3,283				18,013	1,103	5,411	

[1] U. S. Tennessee Valley Authority reports (*323*); 1935–48 data are for materials shipped and 1949 and subsequent data are for materials actually used. This causes a duplication in that 80 tons of concentrated superphosphate and 927 tons of fused tricalcium phosphate are included in both the 1948 and 1949 data.

[2] The product of heating phosphate rock at high temperatures in the presence of silica and water vapor (*332*).

[3] Potash-phosphate ash, often called precipitator dust, is a byproduct of the manufacture of electro-thermal phosphorus (*332*).

[4] Phosphorus furnace slag is considered to be a soil conditioner and not a source of available phosphoric oxide.

[5] Computed on the basis of average percentages provided by the Authority.

[6] Potassium metaphosphate 112 tons and ammonia liquor 172 tons.

[7] Ammonia liquor; revised.

[8] Ammonia liquor.

Fertilizer Consumption by Counties

TABLE 125.—*Alabama: Consumption of fertilizers, nitrogen, available phosphoric oxide, and potash, by counties, years ended Sept. 30, 1929 and 1939 and June 30, 1949*

County	Fertilizer [1]			Nitrogen [2]			Available phosphoric oxide [2]			Potash [2]		
	1929	1939	1949	1929	1939	1949	1929	1939	1949	1929	1939	1949
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Autauga	9,500	4,800	12,600	580	300	651	709	397	1,214	365	170	564
Baldwin	9,000	20,200	33,600	317	1,046	1,532	862	1,814	3,249	498	1,146	1,973
Barbour	14,000	9,000	15,100	586	488	706	1,131	659	1,512	624	358	743
Bibb	4,000	2,700	5,100	201	235	279	374	277	454	133	146	213
Blount	8,500	10,200	24,300	383	647	1,490	751	783	2,221	352	402	1,172
Bullock	7,500	7,200	11,300	312	390	541	575	689	1,091	502	287	582
Butler	10,000	8,300	12,100	623	468	586	722	655	1,186	370	353	600
Calhoun	9,500	6,200	7,300	467	372	384	849	473	666	458	234	309
Chambers	10,000	8,400	14,200	885	528	738	1,428	631	1,361	426	276	597
Cherokee	10,500	10,600	15,400	413	636	987	1,056	809	1,318	473	401	751
Chilton	10,500	6,800	15,300	713	432	920	786	509	1,251	302	270	773
Choctaw	3,500	4,500	6,000	154	248	404	348	357	585	104	184	264
Clarke	5,500	7,600	7,600	235	419	344	492	671	773	201	310	401
Clay	7,500	5,000	8,900	412	314	515	677	376	773	243	165	344
Cleburne	4,500	2,800	5,400	213	168	299	438	214	462	148	106	254
Coffee	16,000	12,300	26,100	671	667	1,241	1,237	899	2,563	736	490	1,305
Colbert	7,500	8,000	10,800	318	389	591	706	478	926	238	213	524
Conecuh	10,500	8,700	11,700	442	491	578	917	668	1,145	431	370	520
Coosa	3,000	2,500	4,200	97	157	235	317	188	389	99	82	137
Covington	18,500	14,100	25,000	941	796	1,127	1,416	1,073	2,657	685	599	1,036
Crenshaw	14,000	10,000	13,500	723	615	699	1,081	830	1,245	534	463	690
Cullman	22,500	18,800	40,300	1,471	1,192	2,449	1,696	1,410	3,769	665	741	1,858
Dale	12,000	5,900	10,800	628	320	509	860	431	1,065	579	235	509
Dallas	13,500	13,000	19,500	751	849	942	1,088	1,056	2,105	880	481	521
De Kalb	18,500	15,700	41,300	815	943	2,250	1,768	1,216	3,577	632	503	2,224
Elmore	16,500	8,800	20,000	918	549	1,092	1,285	685	1,934	582	311	844
Escambia	11,500	4,500	15,700	504	254	712	1,121	342	1,563	523	191	943
Etowah	10,000	8,000	15,400	560	480	882	992	611	1,283	315	302	788
Fayette	6,500	4,200	8,700	253	272	503	664	359	737	158	149	356
Franklin	7,000	4,200	11,000	406	272	551	650	495	1,032	137	150	404
Geneva	16,500	12,900	22,900	792	699	986	1,262	943	2,332	784	514	1,326
Greene	4,000	5,600	11,300	215	379	548	370	478	1,119	131	191	369
Hale	6,000	6,700	15,200	289	453	652	546	834	1,581	161	229	583
Henry	17,500	7,900	17,200	730	428	805	1,395	578	1,669	800	315	992
Houston	18,000	15,300	30,300	678	829	1,454	1,447	1,119	3,011	935	610	1,753
Jackson	8,000	9,700	27,900	305	583	1,454	850	763	2,499	311	366	1,412
Jefferson	3,500	2,800	9,100	133	178	483	347	210	800	116	111	486
Lamar	8,500	5,400	8,600	266	350	521	850	410	697	334	192	358
Lauderdale	9,500	5,900	15,300	326	340	760	964	501	1,414	378	232	727
Lawrence	11,000	10,100	29,700	511	582	1,641	1,034	846	2,559	389	396	1,394
Lee	13,000	8,900	12,500	692	503	715	1,225	601	1,063	221	263	642
Limestone	15,000	8,700	25,700	622	502	1,224	1,518	753	2,452	546	342	1,171
Lowndes	4,500	5,300	7,400	223	331	368	408	645	762	277	187	260
Macon	13,500	11,300	16,400	655	710	872	1,019	895	1,525	745	372	730
Madison	21,500	13,900	34,000	863	801	1,769	2,256	1,190	3,033	1,491	546	1,709
Marengo	6,500	9,800	18,200	328	603	917	571	1,025	1,714	223	335	703
Marion	6,500	5,200	12,700	297	337	740	620	436	1,072	205	135	506
Marshall	23,500	15,000	36,100	1,283	805	2,013	2,102	1,216	3,074	673	589	1,828
Mobile	8,500	9,000	14,300	243	477	712	884	771	1,349	464	458	726
Monroe	11,500	12,500	16,500	638	705	783	934	951	1,727	425	531	659
Montgomery	7,000	7,600	12,400	414	474	470	500	650	1,565	432	268	238
Morgan	12,500	8,400	26,900	592	484	1,501	1,119	690	2,304	475	330	1,269
Perry	8,500	7,500	11,400	342	468	553	808	653	1,191	322	265	384
Pickens	8,500	7,600	15,800	367	514	833	853	580	1,467	228	260	592
Pike	17,500	13,500	21,400	844	732	1,169	1,342	1,005	1,864	765	538	1,149
Randolph	15,000	7,000	15,500	675	440	856	1,487	529	1,418	437	230	628
Russell	8,500	8,400	8,600	420	528	468	686	631	756	410	277	447
St. Clair	4,500	3,000	11,100	205	190	641	406	225	937	203	119	519
Shelby	4,500	4,100	5,800	213	260	297	419	340	531	182	162	298
Sumter	5,000	8,300	9,700	245	561	458	459	902	981	178	283	327
Talladega	10,000	8,100	14,200	424	509	746	949	619	1,350	402	267	575
Tallapoosa	8,500	5,300	10,700	344	333	588	840	308	946	218	175	488
Tuscaloosa	8,000	7,000	13,800	332	473	785	821	528	1,205	300	239	580
Walker	6,500	3,900	9,100	243	247	534	690	204	768	209	154	371
Washington	3,500	3,700	4,500	144	204	193	337	319	504	136	149	166
Wilcox	5,500	6,400	9,200	295	400	502	470	493	823	192	226	422
Winston	5,500	4,700	11,400	239	298	704	596	356	905	252	185	499
Total	684,000	549,000	1,063,000	32,198	32,767	55,227	60,426	44,472	99,123	27,394	21,269	49,655
Total obtained in Branch survey [3]			1,186,030			61,618			110,596			55,402

[1] 1929, "Alabama Farm Production" (*18*); 1939 and 1949, Alabama Department of Agriculture and Industries and U. S. Department of Agriculture (*19*).

[2] 1929 and 1939, Lowery, Harbor, and Stewart (*120*). 1949, computed from the tonnages of the various kinds and grades of fertilizers and their estimated composition.

[3] Scholl and Wallace (*218*)

TABLE 126.—*Arkansas: Consumption of fertilizers, nitrogen, available phosphoric oxide, and potash, by counties, years ended June 30, 1939 and 1949*

County	Fertilizer[1]		Nitrogen[2]		Available phosphoric oxide[2]		Potash[2]	
	1939	1949	1939	1949	1939	1949	1939	1949
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Arkansas	183	3,949	9	240	7	458	21	213
Ashley	1,625	5,401	88	642	121	358	113	443
Baxter	236	445	9	3	25	87	3	12
Benton	433	6,715	26	129	34	1,329	14	103
Boone	370	1,703	19	30	23	326	11	36
Bradley	3,710	3,728	226	381	192	335	127	152
Calhoun	1,257	789	63	59	103	60	86	60
Carroll	245	1,387	11	17	17	281	7	22
Chicot	483	2,990	77	400	7	177	8	187
Clark	129	1,087	5	81	8	115	8	66
Clay	350	4,986	6	104	18	570	78	605
Cleburne	866	1,960	27	62	85	300	30	76
Cleveland	971	1,316	49	79	71	146	45	75
Columbia	5,618	4,503	360	420	256	448	159	143
Conway	1,577	5,593	66	319	136	736	83	286
Craighead	1,076	7,947	14	394	40	736	326	1,008
Crawford	874	3,787	54	414	69	341	43	96
Crittenden	1,179	3,380	226	620	0	156	0	227
Cross	354	3,863	38	351	8	360	25	375
Dallas	1,019	2,904	52	184	78	298	39	207
Desha	685	2,971	64	473	23	129	48	160
Drew	1,498	3,233	72	212	138	404	85	129
Faulkner	2,308	7,641	111	400	174	1,082	89	278
Franklin	441	2,019	17	78	36	319	20	64
Fulton	90	1,510	3	26	11	288	4	32
Garland	255	740	12	20	24	109	12	26
Grant	759	828	38	43	51	100	33	41
Greene	492	2,880	14	98	36	317	82	375
Hempstead	1,591	3,085	87	322	123	300	74	113
Hot Spring	982	1,576	51	88	58	192	44	84
Howard	1,188	3,389	112	303	55	347	54	108
Independence	849	2,711	22	105	84	338	48	106
Izard	609	1,762	17	72	64	211	17	63
Jackson	129	1,134	12	188	5	50	5	68
Jefferson	5,440	9,834	630	1,205	109	488	140	530
Johnson	393	2,712	28	118	20	377	14	158
Lafayette	881	1,588	46	174	71	105	39	115
Lawrence	613	2,740	9	241	24	262	169	238
Lee	429	2,070	50	350	18	112	28	133
Lincoln	829	2,509	73	259	50	236	39	170
Little River	68	670	4	83	6	74	5	29
Logan	408	1,531	15	62	40	249	19	41
Lonoke	1,373	8,202	69	593	110	684	85	731
Madison	207	1,712	9	12	24	379	7	11
Marion	18	1,135	1	27	2	215	1	7
Miller	511	3,003	24	436	49	236	22	87
Mississippi	1,930	7,661	179	1,433	51	477	210	738
Monroe	888	2,871	134	429	19	196	48	137
Montgomery	127	176	6	5	7	28	4	5
Nevada	2,068	2,525	113	154	179	282	97	104
Newton	15	133	0	3	1	25	1	3
Ouachita	1,083	1,317	96	77	133	161	92	54
Perry	187	350	9	26	14	38	12	22
Phillips	1,250	4,353	158	701	37	217	35	234
Pike	648	503	71	28	20	60	13	22
Poinsett	646	5,955	77	546	10	522	70	593
Polk	560	1,115	23	39	53	175	25	34
Pope	211	2,316	11	145	13	316	7	68
Prairie	236	1,350	19	112	18	161	7	69
Pulaski	3,663	6,085	248	665	124	438	98	276
Randolph	278	1,512	7	66	24	177	32	133
St. Francis	1,204	4,028	175	594	18	297	64	290
Saline	713	568	40	21	40	88	27	20
Scott	204	904	8	35	20	151	11	23
Searcy	64	622	3	21	6	93	1	27
Sebastian	709	5,212	34	534	59	453	38	228
Sevier	308	1,032	21	73	24	120	16	39
Sharp	546	1,874	20	64	53	286	23	73
Stone	39	188	1	4	4	32	1	3
Union	2,734	1,735	166	294	145	116	83	39
Van Buren	571	1,446	24	46	48	229	16	49
Washington	737	4,021	27	169	82	644	33	127
White	2,852	10,293	99	452	287	1,382	130	600
Woodruff	147	1,563	9	35	6	175	16	164
Yell	322	1,288	13	80	29	153	14	72
Total	71,138	214,713	4,805	17,934	4,236	22,752	3,624	12,595
Total obtained in Branch survey[3]	71,138	316,914	4,805	26,484	4,236	33,597	3,624	18,595

[1] 1939, Arkansas State Department of Revenue (*25*); 1949, Arkansas State Plant Board (*26*).

[2] Computed from the tonnages of the various kinds and grades of fertilizers and their estimated composition.

[3] 1939, Mehring, Deming, and Willett (*146*); 1949, Scholl and Wallace (*218*).

TABLE 127.—*Florida: Consumption of fertilizers, nitrogen, available phosphoric oxide, and potash, by counties, calendar year 1939 and year ended June 30, 1949*

County	Fertilizer [1]		Nitrogen [2]		Available phosphoric oxide [2]		Potash [2]	
	1939	1949	1939	1949	1939	1949	1939	1949
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Alachua	12,684	14,534	463	637	873	1,060	650	828
Baker	1,716	1,344	66	40	131	106	85	68
Bay	344	1,032	13	19	25	115	10	37
Bradford	2,743	3,688	132	169	226	265	166	209
Brevard	10,465	10,477	469	443	788	791	873	750
Broward	30,091	26,850	1,550	1,291	2,270	2,058	1,545	1,169
Calhoun	1,555	4,485	45	164	140	424	78	202
Charlotte	930	817	56	33	46	75	54	46
Citrus	874	1,023	22	44	50	78	39	67
Clay	1,241	951	28	47	65	69	26	59
Collier	3,904	4,873	153	176	299	398	326	258
Columbia	3,125	4,272	95	197	242	323	198	278
Dade	38,429	44,144	1,853	2,149	2,052	3,294	2,598	2,497
De Soto	8,808	5,924	310	253	407	441	334	402
Dixie	16	133	0	5	1	10	2	7
Duval	2,093	5,490	181	221	247	455	199	315
Escambia	2,297	3,435	77	126	223	343	99	200
Flagler	2,033	1,374	111	68	144	103	146	92
Franklin	13	59	0	6	1	4	1	1
Gadsden	8,305	12,051	337	590	630	915	564	724
Gilchrist	1,403	3,074	55	168	97	294	95	215
Glades	301	1,151	12	33	44	129	20	48
Gulf	251	209	9	6	24	23	13	14
Hamilton	3,645	4,317	133	186	284	342	272	254
Hardee	6,831	13,701	446	581	413	907	442	919
Hendry	1,110	5,302	49	204	124	370	66	657
Hernando	954	2,713	48	120	68	226	70	167
Highlands	8,123	14,228	598	735	722	1,009	875	964
Hillsborough	17,895	37,256	1,095	1,801	1,305	2,714	1,293	2,250
Holmes	1,800	4,033	60	169	185	392	93	241
Indian River	8,591	15,134	447	638	682	1,103	690	1,102
Jackson	8,629	23,160	243	860	868	2,278	376	1,397
Jefferson	1,968	5,752	88	259	161	471	116	355
Lafayette	1,732	2,075	56	94	134	160	114	132
Lake	26,355	52,584	1,497	2,641	1,877	3,561	2,085	3,622
Lee	7,254	10,308	435	472	511	767	531	587
Leon	582	3,575	29	172	51	287	31	213
Levy	2,850	2,795	63	116	149	201	71	171
Liberty	150	6	7	0	14	1	8	0
Madison	3,364	6,338	123	262	247	501	228	400
Manatee	16,411	14,675	939	695	986	1,001	1,000	919
Marion	13,629	20,882	656	997	924	1,414	810	1,271
Martin	4,142	2,537	198	104	293	199	278	183
Monroe	13	1	0	0	1	0	1	0
Nassau	442	581	22	22	40	49	29	35
Okaloosa	2,051	2,712	99	115	337	267	109	160
Okeechobee	96	4,261	5	103	9	542	8	173
Orange	31,734	50,419	2,114	2,483	2,188	3,332	2,078	3,492
Osceola	1,904	4,868	72	161	110	531	101	252
Palm Beach	26,802	35,710	1,337	1,304	2,040	2,837	1,684	3,315
Pasco	4,135	13,679	245	678	393	897	417	956
Pinellas	8,389	16,433	618	848	645	1,154	643	1,080
Polk	72,022	102,452	4,191	5,333	5,492	6,838	6,357	7,250
Putnam	5,373	5,828	230	259	354	430	411	396
St. Johns	16,460	17,281	907	901	1,234	1,282	1,102	1,079
St. Lucie	12,883	23,356	622	1,012	891	1,712	1,001	1,602
Santa Rosa	4,656	8,330	173	324	515	862	204	496
Sarasota	7,724	4,662	443	236	816	296	383	343
Seminole	26,066	15,251	1,373	756	1,420	933	1,647	1,066
Sumter	5,502	7,337	223	338	308	534	262	443
Suwannee	7,156	11,102	272	517	546	853	472	688
Taylor	412	668	16	29	28	52	35	41
Union	1,497	2,037	55	86	124	140	103	113
Volusia	9,096	11,638	443	538	590	795	653	842
Wakulla	97	156	4	6	7	13	4	8
Walton	1,740	3,420	58	134	181	332	76	199
Washington	1,901	2,298	59	82	208	239	88	131
Total	520,056	738,270	26,893	34,262	38,418	54,597	36,024	48,570

[1] Florida Department of Agriculture (*61*); excludes limestone tonnages which are given in the original reports.

[2] Computed from the tonnages of the various kinds and grades of fertilizers and their estimated composition.

TABLE 128.—*Georgia: Consumption, by counties, of fertilizers, calendar years 1939 and 1945, and of nitrogen, available phosphoric oxide, and potash, calendar year 1945*

County	Fertilizer		Nitrogen 1945 [3]	Available phosphoric oxide 1945 [3]	Potash 1945 [3]	County	Fertilizer		Nitrogen 1945 [3]	Available phosphoric oxide 1945 [3]	Potash 1945 [3]
	1939 [1]	1945 [2]					1939 [1]	1945 [2]			
	Tons	*Tons*	*Tons*	*Tons*	*Tons*		*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Appling	5,018	6,201	206	579	332	Houston	5,903	3,205	146	295	167
Atkinson	2,945	1,569	55	144	95	Irwin	7,308	10,178	365	939	600
Bacon	4,213	5,484	221	406	309	Jackson	7,211	5,180	289	429	257
Baker	3,137	1,664	46	178	106						
Baldwin	2,278	2,291	96	201	116	Jasper	3,543	4,482	247	411	192
Banks	3,056	1,464	89	104	69	Jeff Davis	3,668	4,443	152	391	260
						Jefferson	11,070	12,276	764	948	598
Barrow	5,475	1,578	104	112	68	Jenkins	6,299	5,174	386	320	245
Bartow	5,463	6,934	354	593	393	Johnson	6,322	3,103	132	306	123
Ben Hill	3,362	4,602	175	436	290	Jones	2,154	769	48	56	35
Berrien	7,764	8,745	294	1,110	504						
Bibb	2,211	1,949	131	146	92	Lamar	2,416	2,291	110	182	147
Bleckley	3,718	4,095	187	385	194	Lanier	1,962	2,709	108	236	159
						Laurens	13,152	11,605	615	890	594
Brantley	1,844	2,142	88	182	124	Lee	2,263	2,132	72	208	106
Brooks	8,589	14,687	604	1,279	1,113	Liberty	1,101	294	10	25	13
Bryan	1,418	1,485	64	127	87	Lincoln	2,191	2,814	118	290	112
Bulloch	13,649	17,713	757	1,564	920						
Burke	13,492	8,229	349	734	418	Long	967	665	28	55	34
Butts	3,215	5,274	329	403	239	Lowndes	7,066	14,960	533	1,446	863
						Lumpkin	1,282	1,105	50	90	60
Calhoun	3,804	7,792	303	717	446	McDuffie	3,644	2,526	101	230	142
Camden	181	380	17	30	23	McIntosh	128	104	6	9	5
Candler	5,086	6,788	298	569	393	Macon	6,985	8,848	451	754	471
Carroll	13,443	21,149	1,116	1,641	1,123						
Catoosa	1,375	1,162	46	104	67	Madison	6,430	4,583	209	336	222
Charlton	540	802	30	67	48	Marion	2,143	1,959	72	198	89
						Meriwether	8,142	5,498	316	441	265
Chatham	1,470	1,042	65	76	54	Miller	4,818	7,203	172	809	409
Chattahoochee	335	368	13	43	13	Mitchell	10,427	17,768	540	1,749	1,082
Chattooga	3,422	3,654	161	358	201	Monroe	2,031	2,435	134	204	107
Cherokee	3,369	2,967	128	285	78						
Clarke	1,903	1,368	86	94	78	Montgomery	3,269	1,935	78	181	100
Clay	2,563	3,760	191	335	181	Morgan	6,229	6,575	441	459	304
						Murray	1,833	1,552	60	140	93
Clayton	1,854	2,536	178	190	98	Muscogee	1,003	634	31	49	24
Clinch	638	648	30	50	38	Newton	4,366	5,835	352	459	247
Cobb	5,191	5,076	234	475	252	Oconee	4,142	2,438	177	156	107
Coffee	10,774	18,906	722	1,671	1,061						
Colquitt	13,133	15,660	789	1,303	876	Oglethorpe	4,947	1,702	79	166	68
Columbia	2,837	2,904	122	274	136	Paulding	4,260	3,395	190	269	163
						Peach	4,516	3,719	244	305	240
Cook	4,927	7,734	302	673	543	Pickens	1,225	1,060	47	107	40
Coweta	6,142	6,789	363	594	335	Pierce	5,836	8,384	283	772	505
Crawford	2,704	1,359	76	111	66	Pike	5,003	4,288	327	270	227
Crisp	6,606	8,836	393	734	581						
Dade	579	408	28	32	14	Polk	3,602	4,672	251	376	249
Dawson	879	514	26	44	37	Pulaski	3,723	5,690	264	468	328
						Putnam	1,352	1,478	61	163	54
Decatur	5,516	6,699	170	636	376	Quitman	1,113	588	18	70	20
De Kalb	2,157	3,139	196	234	157	Rabun	1,194	1,516	75	124	83
Dodge	7,328	7,386	266	695	375	Randolph	6,885	7,761	407	614	400
Dooly	9,860	11,135	496	949	690						
Dougherty	1,440	2,889	120	266	176	Richmond	2,732	4,214	277	290	215
Douglas	2,594	2,894	128	182	145	Rockdale	2,279	1,941	106	147	101
						Schley	2,221	1,225	41	146	36
Early	8,945	15,732	554	1,467	968	Screven	7,536	2,859	108	183	99
Echols	745	117	4	11	7	Seminole	4,018	6,294	168	671	409
Effingham	4,286	2,441	114	213	124	Spalding	3,757	3,722	194	338	195
Elbert	4,928	3,721	159	341	215						
Emanuel	10,518	9,619	490	787	493	Stephens	1,751	2,450	125	221	129
Evans	3,343	3,982	169	337	236	Stewart	3,009	3,981	231	336	146
						Sumter	8,314	14,490	372	1,795	411
Fannin	1,141	2,620	114	238	133	Talbot	1,710	1,437	63	150	51
Fayette	3,262	2,021	107	163	110	Taliaferro	1,515	1,083	44	121	33
Floyd	4,999	5,191	257	460	269	Tattnall	6,921	7,986	325	699	413
Forsyth	4,679	2,157	115	177	108						
Franklin	6,384	6,503	386	530	333	Taylor	5,091	4,757	291	375	206
Fulton	5,074	6,500	338	538	307	Telfair	1,292	3,454	98	367	161
						Terrell	8,164	11,970	726	861	644
Gilmer	997	1,967	104	176	102	Thomas	8,412	14,138	540	1,210	913
Glascock	2,666	2,396	136	173	145	Tift	6,442	17,157	612	1,618	1,043
Glynn	119	501	22	37	31	Toombs	5,392	3,625	143	352	201
Gordon	4,544	4,901	221	413	318						
Grady	8,292	9,157	296	890	512	Towns	481	269	18	16	17
Greene	2,673	1,166	72	86	51	Treutlen	3,271	1,360	72	132	59
						Troup	2,557	2,272	103	196	121
Gwinnett	7,917	7,169	357	611	360	Turner	5,942	9,417	312	964	518
Habersham	2,515	2,094	154	202	163	Twiggs	2,012	1,372	61	114	72
Hall	4,950	7,115	361	611	378	Union	1,175	1,257	49	118	63
Hancock	3,469	2,071	122	157	91						
Haralson	4,523	2,988	141	256	142	Upson	3,070	1,556	83	137	79
Harris	2,305	3,068	252	210	112	Walker	2,498	3,385	130	349	185
						Walton	10,252	4,500	312	259	258
Hart	8,765	6,803	391	541	360	Ware	3,224	4,030	180	329	208
Heard	3,399	1,111	73	85	60	Warren	4,910	5,152	370	396	185
Henry	7,453	5,646	238	472	325	Washington	8,770	6,767	345	558	319

See footnotes at end of table, p. 141.

TABLE 128.—*Georgia: Consumption, by counties, of fertilizers, calendar years 1939 and 1945, and of nitrogen, available phosphoric oxide, and potash, calendar year 1945*—Continued

County	Fertilizer		Nitrogen 1945 [3]	Available phosphoric oxide 1945 [3]	Potash 1945 [3]
	1939 [1]	1945 [2]			
	Tons	*Tons*	*Tons*	*Tons*	*Tons*
Wayne	4,004	7,263	313	597	424
Webster	2,160	1,459	76	132	58
Wheeler	4,013	3,684	143	366	183
White	1,430	1,000	41	94	44
Whitfield	2,028	3,573	131	344	195
Wilcox	6,298	6,979	288	614	406
Wilkes	4,033	3,461	137	336	170
Wilkinson	2,852	3,400	166	297	153
Worth	10,455	6,977	313	576	392
Total	700,044	758,990	34,755	66,446	40,687
Totals from other surveys [4]	691,199	1,036,794	52,385	97,324	50,224

[1] National Fertilizer Association (*174*).
[2] Georgia Department of Agriculture (*86*).
[3] Computed from the tonnages of the various kinds and grades of fertilizer and their estimated composition.
[4] 1939, Georgia Department of Agriculture (*64*); 1945, based on Branch surveys.

TABLE 129.—*Kansas: Consumption of fertilizers, nitrogen, available phosphoric oxide, and potash, by counties, calendar year 1939 and year ended June 30, 1950*

County	Fertilizer		Nitrogen [3]		Available phosphoric oxide [3]		Potash [3]	
	1939 [1]	1950 [2]	1939	1950	1939	1950	1939	1950
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Allen	278	3,758	0	99	61	711	0	20
Anderson	150	3,454	0	189	66	822	0	11
Atchison	178	1,615	2	76	66	444	2	14
Barber	0	1,152	0	133	0	290	0	1
Barton	25	327	1	55	3	46	1	2
Bourbon	208	4,317	1	54	40	521	1	44
Brown	21	1,954	0	271	8	441	0	1
Butler	218	3,885	0	223	121	1,249	0	3
Chase	98	1,125	0	111	49	209	0	0
Chautauqua	101	684	0	25	21	216	0	2
Cherokee	1,950	5,417	29	164	270	935	37	211
Clay	6	1,101	0	118	2	277	0	3
Cloud	11	448	0	30	1	153	0	0
Coffey	139	3,008	0	352	63	562	1	2
Comanche	0	140	0	24	0	29	0	0
Cowley	144	3,837	3	238	24	1,097	4	12
Crawford	1,394	5,662	9	140	214	777	13	198
Decatur	0	26	0	9	0	0	0	0
Dickinson	9	2,277	0	221	4	509	0	1
Doniphan	0	1,063	0	180	0	210	0	4
Douglas	208	4,296	3	585	55	691	3	36
Edwards	0	81	0	0	0	2	0	0
Elk	55	732	0	18	15	180	0	1
Ellsworth	0	230	0	44	0	41	0	0
Finney	164	740	0	130	73	163	0	0
Ford	0	3	0	0	0	0	0	0
Franklin	302	2,545	0	128	77	565	1	14
Geary	13	499	0	72	4	105	0	0
Gove	0	4	0	0	0	1	0	0
Graham	0	31	0	11	0	0	0	0
Grant	1	31	0	12	0	0	0	0
Greenwood	130	2,736	0	197	55	682	0	14
Harper	0	1,362	0	11	0	564	0	0
Harvey	32	2,321	0	221	15	538	0	2
Haskell	0	15	0	0	0	0	0	0
Jackson	228	2,190	0	287	101	469	1	4
Jefferson	109	1,029	0	201	58	412	0	12
Jewell	0	103	0	24	0	10	0	0
Johnson	342	2,787	2	262	105	658	3	27
Kearny	0	10	0	14	0	0	0	0
Kingman	0	857	0	64	0	251	0	1
Kiowa	0	20	0	8	0	9	0	0
Labette	974	6,811	10	167	137	953	15	182
Leavenworth	98	2,080	1	121	31	332	1	16
Lincoln	30	126	0	20	6	16	0	0
Linn	237	3,551	2	81	50	421	2	33
Logan	0	1	0	0	0	0	0	0
Lyon	182	3,695	0	406	73	749	0	10
McPherson	10	1,955	0	130	4	589	0	2
Marion	30	4,381	0	456	17	833	0	3
Marshall	102	2,480	0	353	46	530	0	0
Miami	391	5,027	8	226	70	563	10	27
Mitchell	1	875	0	243	0	70	0	0
Montgomery	194	4,607	3	90	34	568	4	62
Morris	21	1,490	0	146	9	424	0	2
Nemaha	98	2,547	0	317	45	642	0	6
Neosho	512	5,301	2	174	65	870	3	114
Ness	0	150	0	31	0	7	0	0
Norton	3	0	0	0	0	0	0	0
Osage	83	2,454	0	252	30	484	0	8
Osborne	0	111	0	29	0	4	0	1
Ottawa	20	488	0	33	9	161	0	1
Pawnee	0	121	0	10	0	6	0	0
Phillips	0	170	0	39	0	25	0	0
Pottawatomie	21	1,852	0	292	9	305	0	1
Pratt	1	231	0	18	0	61	0	0
Reno	67	2,893	3	392	10	565	2	12
Republic	0	342	0	73	0	44	0	0
Rice	27	708	0	105	12	166	0	0
Riley	8	1,880	0	209	2	231	0	1
Rooks	0	1	0	0	0	0	0	0
Rush	0	71	0	24	0	0	0	0
Russell	0	31	0	0	0	14	0	0
Saline	28	736	1	78	3	161	1	5
Scott	0	24	0	7	0	0	0	0
Sedgwick	261	6,594	31	398	29	1,968	3	39
Seward	0	3	0	0	0	0	0	0
Shawnee	596	6,113	4	688	230	962	1	36
Sheridan	0	1	0	0	0	0	0	0
Smith	1	22	0	7	0	2	0	0
Stafford	0	486	0	63	0	102	0	0
Stanton	0	1	0	0	0	0	0	0
Stevens	0	2	0	0	0	0	0	0
Sumner	47	4,833	0	174	1	1,017	0	2
Thomas	0	1	0	0	0	0	0	0
Trego	0	11	0	14	0	0	0	0
Wabaunsee	61	1,067	0	132	30	262	0	0
Wallace	1	0	0	0	0	0	0	0
Washington	55	2,081	0	201	25	518	0	1
Wilson	87	3,330	0	102	31	686	0	30
Woodson	202	2,805	2	131	66	497	2	12
Wyandotte	482	1,378	27	135	101	200	8	33
Unspecified [4]	0	369	0	14	0	31	0	6
Total	11,536	155,264	144	11,021	2,770	31,569	119	1,285
Totals from other surveys [4]	14,415	160,215	170	11,991	3,293	32,575	145	1,324

[1] Kansas State Board of Agriculture (*107*), which also gives data for the 5 years ended June 30, 1917-51, and the usage for the principal crops in 1951 by counties. Includes Government distribution.
[2] Kansas State Board of Agriculture (*106*).
[3] Computed from the tonnages of the various kinds and grades of fertilizer and their estimated composition.
[4] 13 other counties.
[5] 1939, fertilizer tonnage in table 106 and nitrogen, available phosphoric oxide, and potash tonnages in tables 7, 39, and 67, respectively; 1950, Scholl and Wallace (*220*).

TABLE 130.—*Louisiana: Consumption of fertilizers, nitrogen, available phosphoric oxide, and potash, by parishes, Sept. 1, 1938–June 30, 1939, and the year ended Aug. 31, 1949*

Parish	Fertilizer [1]		Nitrogen [2]		Available phosphoric oxide [2]		Potash [2]	
	1939	1949	1939	1949	1939	1949	1939	1949
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Acadia	4,881	13,400	63	663	628	1,498	261	715
Allen	2,145	4,035	88	170	217	402	84	160
Ascension	1,702	2,207	170	458	128	139	92	38
Assumption	2,495	2,128	528	694	9	12	3	4
Avoyelles	1,340	4,878	100	483	26	484	15	152
Beauregard	942	2,321	51	108	89	276	40	94
Bienville	5,989	5,388	420	488	468	389	215	204
Bossier	1,088	3,720	141	482	46	204	19	176
Caddo	4,776	10,894	679	1,613	139	579	62	369
Calcasieu	4,084	10,012	127	581	546	894	124	320
Caldwell	467	917	40	64	35	84	18	61
Cameron	0	75	0	3	0	8	0	9
Catahoula	474	1,653	74	252	3	86	1	36
Claiborne	3,930	5,650	427	387	180	457	97	241
Concordia	516	1,117	84	336	0	7	0	6
De Soto	2,438	3,855	129	202	218	388	107	269
East Baton Rouge	1,726	6,282	78	787	172	668	69	159
East Carroll	906	477	150	136	1	7	1	7
East Feliciana	2,833	5,761	83	180	285	717	83	133
Evangeline	3,078	6,848	114	338	332	748	159	399
Franklin	693	4,683	97	524	6	352	3	219
Grant	748	973	56	53	56	108	26	36
Iberia	2,540	3,704	405	776	69	191	19	52
Iberville	1,559	1,302	321	338	13	51	5	5
Jackson	961	1,072	56	76	79	100	39	43
Jefferson	209	708	29	210	27	9	2	4
Jefferson Davis	4,526	11,070	38	611	459	1,356	199	642
Lafayette	1,200	5,347	109	444	108	702	34	153
Lafourche	3,163	2,276	533	433	93	137	46	27
La Salle	308	602	21	34	22	50	16	23
Lincoln	4,540	5,153	322	413	341	428	168	221
Livingston	3,469	3,179	145	146	344	358	124	135
Madison	223	756	38	210	0	4	0	23
Morehouse	2,736	6,144	308	530	20	384	380	658
Natchitoches	1,762	3,702	209	431	70	348	34	143
Orleans	930	2,571	95	405	60	158	34	79
Ouachita	3,380	5,642	207	1,356	194	333	131	332
Plaquemines	330	1,172	25	94	41	106	14	48
Pointe Coupee	1,955	2,319	231	289	117	152	56	41
Rapides	3,166	6,365	341	594	159	542	70	199
Red River	1,672	2,896	130	384	111	198	56	104
Richland	1,051	4,000	164	355	12	282	8	343
Sabine	2,352	5,660	146	406	194	590	92	265
St. Bernard	74	90	10	5	2	8	1	4
St. Charles	107	279	30	84	4	8	2	5
St. Helena	1,447	1,223	69	83	123	126	42	52
St. James	1,503	1,931	236	436	51	63	20	16
St. John the Baptist	910	1,202	124	191	30	45	30	17
St. Landry	2,070	12,838	103	1,014	278	1,339	123	527
St. Martin	1,213	2,462	200	394	34	165	3	59
St. Mary	2,830	1,587	489	583	85	24	10	13
St. Tammany	1,184	5,373	58	377	105	552	47	138
Tangipahoa	12,058	15,714	517	687	1,326	1,846	407	508
Tensas	814	1,275	137	554	0	1	0	0
Terrebonne	2,007	2,271	487	689	96	101	48	17
Union	2,774	4,472	172	293	218	429	109	181
Vermilion	3,281	7,030	114	361	385	820	117	268
Vernon	1,753	3,456	105	237	158	359	77	134
Washington	5,370	10,348	270	551	477	1,120	213	388
Webster	5,876	7,328	468	681	405	690	220	219
West Baton Rouge	827	609	174	195	6	1	4	0
West Carroll	441	1,840	67	122	6	132	3	101
West Feliciana	903	1,431	73	96	84	141	21	31
Winn	1,122	1,060	70	60	98	106	53	49
Total	140,387	258,813	11,780	25,227	10,074	23,042	4,563	10,074

[1] Louisiana Department of Agriculture and Immigration (*115*). Prior to 1943 these reports were issued for 10 months because very little fertilizer was sold in July and August.

[2] Computed from the tonnages of the various kinds and grades of fertilizer and their estimated composition.

TABLE 131.—*Minnesota: Consumption of fertilizers, by counties, calendar year 1931 and years ended June 30, 1939, 1945, 1950, and 1952* [1]

County	1931	1939	1945	1950	1952
	Tons	*Tons*	*Tons*	*Tons*	*Tons*
Aitkin	78	165	1,137	426	445
Anoka	549	408	2,809	1,726	1,801
Becker	71	43	206	2,430	2,635
Beltrami	48	25	176	448	467
Benton	11	6	37	2,025	2,112
Big Stone	5	12	83	682	711
Blue Earth	94	81	554	3,602	3,757
Brown	60	3	18	2,004	2,090
Carlton	111	35	240	703	734
Carver	62	29	203	1,215	1,267
Cass	41	3	18	512	534
Chippewa	126	14	92	3,218	3,357
Chisago	175	61	416	2,004	2,090
Clay	335	232	1,599	6,607	6,892
Clearwater	32	3	18	639	667
Cook	2	(2)	(2)	(2)	(2)
Cottonwood	111	72	499	2,771	2,890
Crow Wing	53	21	148	512	534
Dakota	504	375	2,578	3,666	3,824
Dodge	304	568	3,909	3,453	3,602
Douglas	50	8	55	2,046	2,134
Faribault	529	391	2,689	4,092	4,269
Fillmore	211	261	1,802	7,220	7,537
Freeborn	2,950	2,578	17,753	6,991	7,292
Goodhue	365	254	1,747	4,028	4,202
Grant	186	12	83	2,600	2,712
Hennepin	991	1,058	7,282	2,153	2,246
Houston	193	137	943	1,918	2,001
Hubbard	14	2	9	639	667
Isanti	522	105	721	1,577	1,645
Itasca	16	9	65	405	422
Jackson	418	56	388	4,242	4,424
Kanabec	51	10	65	1,130	1,178
Kandiyohi	184	114	786	3,218	3,357
Kittson	35	90	619	2,835	2,957
Koochiching	14	4	28	277	289
Lac qui Parle	42	4	28	1,769	1,845
Lake	5	(2)	(2)	149	156
Lake of the Woods	1	9	65	554	578
Le Sueur	46	34	231	1,961	2,045
Lincoln	32	8	55	1,471	1,534
Lyon	179	7	46	3,410	3,557
McLeod	94	54	370	2,664	2,779
Mahnomen	90	48	333	1,056	1,112
Marshall	200	418	2,883	4,625	4,825
Martin	467	237	1,636	5,243	5,469
Meeker	51	23	157	2,430	2,535
Mille Lacs	138	90	619	1,620	1,690
Morrison	57	15	102	1,982	2,068
Mower	819	1,187	8,179	8,547	8,916
Murray	103	36	250	2,664	2,779
Nicollet	177	82	564	3,027	3,157
Nobles	149	49	342	2,600	2,712
Norman	352	291	2,005	3,474	3,624
Olmsted	480	456	3,142	5,030	5,247
Otter Tail	182	38	259	4,071	4,247
Pennington	37	12	83	938	978
Pine	315	80	554	1,663	1,734
Pipestone	65	15	102	1,449	1,512
Polk	749	763	5,258	10,146	10,583
Pope	44	9	65	2,664	2,779
Ramsey	414	260	1,793	171	178
Red Lake	19	36	250	1,068	1,112
Redwood	74	24	166	2,558	2,668
Renville	230	194	1,340	4,089	4,891
Rice	115	107	739	3,048	3,179
Rock	65	(2)	(2)	1,215	1,267
Roseau	23	11	74	1,471	1,534
St. Louis	255	172	1,183	2,387	2,490
Scott	53	40	314	831	867
Sherburne	179	60	416	1,471	1,534
Sibley	74	72	499	2,920	3,046
Stearns	57	45	314	3,581	3,735
Steele	237	189	1,303	2,813	2,935
Stevens	54	6	37	1,769	1,845
Swift	78	20	139	2,089	2,179
Todd	83	47	323	2,323	2,423
Traverse	7	(2)	(2)	1,343	1,401
Wabasha	246	152	1,044	2,771	2,890
Wadena	5	1	6	725	756
Waseca	87	90	619	1,748	1,823
Washington	257	203	1,395	2,131	2,223
Watonwan	193	19	129	2,174	2,268
Wilkin	92	42	286	1,684	1,756
Winona	267	383	2,634	3,240	3,379
Wright	44	20	139	1,769	1,845
Yellow Medicine	120	5	37	1,876	1,957
Unspecified	0	41	44	43	49
Total	17,698	13,455	92,416	213,143	222,332
Total obtained in Branch Surveys [3]			95,444	217,996	225,108

[1] Halvorson (*70*) estimated the 1931, 1939, and 1945 data by allocating the tonnages reported sold in the State on the same percentage basis as the usage reported in the 1930 and 1940 "Census of Agriculture" (*277*), whichever is closest in time. The 1950 and 1952 data are based on a State census for 1950.

[2] Only 1 or 2 farms reporting; amount used on these farms included in "Unspecified."

[3] 1945, Mehring, Wallace, and Scholl (*164*); 1950, Scholl and Wallace (*220*); 1952, Scholl and Wallace (*228*).

TABLE 132.—*Mississippi: Consumption of fertilizers, nitrogen, available phosphoric oxide, and potash, by counties, years ended June 30, 1939 and 1949*

County	Fertilizer [1]		Nitrogen [2]		Available phosphoric oxide [2]		Potash [2]	
	1939	1949	1939	1949	1939	1949	1939	1949
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Adams	666	1,118	82	63	16	142	9	25
Alcorn	4,670	11,018	226	679	395	981	218	600
Amite	1,150	1,948	48	80	114	254	40	55
Attala	3,023	7,751	203	518	355	696	188	361
Benton	1,020	3,719	65	260	78	347	51	160
Bolivar	13,121	12,617	2,708	5,217	1	61	12	37
Calhoun	1,325	6,453	54	389	117	581	77	358
Carroll	365	1,651	27	157	23	126	13	57
Chickasaw	861	4,720	40	360	65	407	51	214
Choctaw	1,386	2,458	69	171	119	209	66	106
Claiborne	213	1,950	18	139	7	218	8	37
Clarke	3,787	6,395	240	411	280	616	189	221
Clay	377	3,777	21	359	26	245	31	161
Coahoma	7,560	14,564	1,466	5,300	5	63	51	157
Copiah	12,050	10,485	631	813	925	816	525	412
Covington	5,105	10,057	330	752	401	810	219	391
De Soto	833	3,732	146	382	5	327	3	141
Forrest	3,680	7,247	229	528	286	646	172	278
Franklin	686	1,682	27	120	61	228	29	41
George	1,167	2,751	76	171	92	276	40	97
Greene	1,168	1,646	65	82	92	174	43	67
Grenada	430	3,113	28	317	27	245	24	193
Hancock	235	107	15	10	17	15	9	9
Harrison	1,810	2,731	124	183	124	246	81	129
Hinds	7,549	12,371	550	1,234	501	1,012	314	422
Holmes	6,051	10,935	1,068	1,922	92	668	90	353
Humphreys	4,070	7,738	824	3,592	5	33	2	35
Issaquena	202	154	51	55	0	0	0	0
Itawamba	1,305	4,588	67	264	106	468	57	191
Jackson	330	1,226	14	53	29	149	12	35
Jasper	3,895	5,634	249	348	312	564	174	180
Jefferson	946	1,932	90	142	46	183	40	52
Jefferson Davis	4,168	9,804	278	783	350	776	202	431
Jones	9,047	11,255	648	822	659	988	396	388
Kemper	2,215	4,510	123	246	194	474	124	151
Lafayette	1,590	7,322	79	433	133	656	78	357
Lamar	2,171	4,878	104	312	178	425	120	218
Lauderdale	5,269	11,985	387	962	383	1,015	204	382
Lawrence	3,890	7,333	180	522	367	623	173	307
Leake	4,034	11,155	244	812	391	986	291	552
Lee	5,043	17,275	287	2,732	207	1,123	421	993
Leflore	8,587	12,272	1,592	2,421	10	329	68	246
Lincoln	4,322	6,530	258	373	349	658	164	272
Lowndes	2,055	6,704	103	517	189	621	74	242
Madison	3,552	15,001	258	1,220	257	1,349	161	583
Marion	7,910	10,132	491	673	613	967	345	447
Marshall	1,386	9,570	77	673	124	821	66	444
Monroe	3,459	14,413	215	1,002	268	1,308	166	670
Montgomery	1,100	4,034	53	235	92	393	54	183
Neshoba	5,429	10,826	366	919	439	819	227	446
Newton	6,451	11,236	409	998	540	975	331	438
Noxubee	2,406	8,438	199	603	127	681	123	320
Oktibbeha	748	3,135	48	269	60	252	37	124
Panola	668	6,555	70	526	12	652	45	266
Pearl River	3,246	7,518	159	1,400	326	618	136	174
Perry	1,787	3,078	108	222	136	262	76	113
Pike	9,452	8,790	570	584	759	882	422	369
Pontotoc	3,658	11,768	206	918	262	929	224	624
Prentiss	2,433	9,219	144	675	197	680	132	620
Quitman	1,980	4,786	393	1,490	0	75	6	121
Rankin	3,896	7,050	227	506	301	676	219	323
Scott	5,839	11,041	367	756	440	973	383	483
Sharkey	2,382	3,303	477	840	0	4	0	2
Simpson	5,014	11,379	295	1,226	403	822	258	487
Smith	4,647	5,839	283	474	355	484	268	247
Stone	1,267	2,545	61	153	99	240	58	97
Sunflower	10,486	18,081	2,046	7,022	23	102	14	20
Tallahatchie	4,386	5,825	819	1,360	6	173	99	196
Tate	425	5,983	42	467	26	549	18	268
Tippah	4,437	11,298	256	714	336	986	199	571
Tishomingo	2,388	5,877	136	349	204	477	89	337
Tunica	4,658	4,223	951	1,931	5	1	12	19
Union	2,822	8,263	182	646	225	647	159	440
Walthall	7,468	9,204	521	657	585	842	267	418
Warren	669	1,733	98	221	7	75	2	61
Washington	6,831	17,096	1,402	7,978	3	60	3	35
Wayne	2,804	5,556	190	386	191	501	110	197
Webster	2,144	5,003	105	390	186	413	110	231
Wilkinson	1,594	2,274	84	141	140	239	60	81
Winston	4,750	8,521	266	590	462	763	201	350
Yalobusha	1,227	4,575	57	370	99	355	66	223
Yazoo	5,048	7,948	951	1,418	19	381	126	228
Unspecified [3]	0	699	0	23	0	91	0	24
Total	285,667	582,567	27,722	77,149	16,541	42,057	10,472	21,402
Total obtained in Branch survey [4]		705,584		80,729		58,284		25,666

[1] Mississippi Department of Agriculture (*158*).

[2] Computed from the tonnages of the various kinds and grades of fertilizer and their estimated composition.

[3] Tons of fertilizer added to total but not credited to any individual county.

[4] Scholl and Wallace (*218*)

TABLE 133.—*Missouri: Consumption of fertilizers, nitrogen, available phosphoric oxide, and potash, by counties, calendar years 1930 and 1950*

County	Fertilizer [1]		Nitrogen [2]		Available phosphoric oxide [2]		Potash [2]	
	1930	1950	1930	1950	1930	1950	1930	1950
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Adair	223	4,744	3	186	20	491	4	153
Andrew	6	1,639	<1	25	<1	105	<1	11
Atchison	72	1,528	<1	172	10	199	1	20
Audrain	733	11,240	11	405	91	1,206	13	520
Barry	1,315	5,613	20	171	171	763	26	432
Barton	1,247	10,949	17	352	165	1,290	21	805
Bates	512	7,534	6	290	69	1,025	7	371
Benton	359	3,333	4	120	46	431	5	188
Bollinger	751	3,508	7	102	90	459	10	226
Boone	385	7,752	6	409	47	875	6	349
Buchanan	307	6,061	5	479	42	914	7	160
Butler	106	1,623	2	78	12	185	3	144
Caldwell	308	4,306	1	148	46	451	2	116
Callaway	284	6,073	2	155	41	576	3	219
Camden	82	253	1	8	10	35	1	11
Cape Girardeau	205	6,471	4	209	36	623	18	363
Carroll	236	3,239	2	332	32	290	4	82
Carter	35	259	<1	9	4	50	<1	19
Cass	717	7,512	6	331	108	1,015	7	255
Cedar	638	4,027	3	133	95	526	3	251
Chariton	417	3,530	3	177	59	358	3	102
Christian	910	3,646	10	118	122	517	16	211
Clark	193	5,011	3	111	15	475	4	372
Clay	132	4,808	1	89	19	327	2	101
Clinton	143	4,785	1	130	20	558	1	157
Cole	602	4,381	6	130	94	531	7	208
Cooper	202	3,392	2	154	26	426	3	146
Crawford	228	1,418	3	40	31	151	3	72
Dade	678	5,175	8	151	91	686	11	397
Dallas	57	1,977	<1	50	9	328	<1	116
Daviess	110	3,065	<1	132	16	432	1	154
De Kalb	118	3,583	<1	101	18	316	<1	101
Dent	223	1,874	3	73	28	291	3	130
Douglas	120	1,827	<1	55	17	240	<1	113
Dunklin	418	11,231	29	1,135	26	910	12	1,735
Franklin	1,051	7,386	10	280	144	878	14	408
Gasconade	550	3,752	4	103	77	467	5	189
Gentry	109	3,685	1	139	14	460	1	96
Greene	2,081	10,990	20	411	283	1,459	26	918
Grundy	173	2,593	2	89	22	330	2	88
Harrison	279	4,291	1	218	42	682	2	200
Henry	573	5,402	6	225	74	806	8	232
Hickory	172	1,509	1	43	63	186	5	77
Holt	1	650	<1	131	<1	67	<1	7
Howard	130	2,540	2	175	17	236	2	59
Howell	925	3,799	14	158	120	470	22	231
Iron	239	1,025	3	11	30	147	4	54
Jackson	523	8,702	13	681	63	812	10	277
Jasper	2,308	12,666	25	303	263	1,572	32	1,051
Jefferson	186	1,884	3	71	21	252	3	134
Johnson	420	3,780	4	118	61	460	4	172
Knox	236	5,531	3	165	30	656	4	303
Laclede	901	3,337	10	98	130	456	13	169
Lafayette	257	6,811	2	323	38	900	2	182
Lawrence	1,757	6,772	17	277	249	873	20	511
Lewis	106	7,237	3	262	57	852	4	375
Lincoln	1,511	6,017	23	328	181	678	30	366
Linn	907	4,502	5	131	130	629	6	173
Livingston	147	2,703	<1	89	22	323	<1	76
McDonald	98	3,511	1	68	13	551	2	122
Macon	512	5,732	8	181	58	508	9	177
Madison	367	1,454	6	56	45	196	7	108
Maries	93	1,237	<1	32	13	181	<1	84
Marion	693	3,847	10	168	85	470	11	256
Mercer	73	1,938	<1	95	11	351	<1	74
Miller	456	1,589	6	54	57	209	7	86
Mississippi	53	3,557	1	454	6	262	2	408
Moniteau	273	3,772	2	197	40	538	3	185
Monroe	734	7,921	9	360	103	941	10	450
Montgomery	692	7,076	10	318	86	803	12	432
Morgan	358	2,674	4	81	49	330	4	120
New Madrid	121	6,039	3	680	14	491	4	816
Newton	760	4,840	4	211	110	557	5	341
Nodaway	204	6,141	2	175	28	534	2	70
Oregon	208	994	3	31	24	130	4	92
Osage	382	3,222	3	152	51	392	4	177
Ozark	75	358	2	8	9	54	3	18
Pemiscot	1	2,422	<1	451	<1	167	<1	195
Perry	126	3,140	1	150	16	434	1	227
Pettis	525	4,647	4	208	75	653	5	253
Phelps	400	2,728	4	100	56	358	4	235
Pike	1,078	7,025	12	347	130	713	14	407
Platte	114	2,848	2	224	14	351	3	143
Polk	1,350	5,607	11	139	184	795	13	383
Pulaski	424	1,311	6	42	52	178	7	63
Putnam	421	2,473	7	56	47	242	9	64
Ralls	211	1,573	2	74	34	228	3	125
Randolph	226	5,748	2	222	30	541	3	181
Ray	326	3,594	4	223	41	394	6	151
Reynolds	88	723	2	26	10	102	2	59
Ripley	396	1,867	5	63	47	251	7	125
St. Charles	684	4,958	7	286	91	510	8	282
St. Clair	549	3,358	8	141	63	501	10	203
St. Francois	675	2,876	8	86	84	358	10	213
Ste. Genevieve	49	1,825	<1	106	7	220	<1	113
St. Louis	1,244	8,426	50	1,198	111	859	34	389
Saline	124	4,677	1	410	17	550	2	138
Schuyler	206	3,131	2	84	27	397	3	89
Scotland	89	2,840	1	98	12	363	2	149
Scott	28	6,250	<1	451	3	501	<1	633
Shannon	73	470	<1	22	11	68	<1	34
Shelby	648	6,034	9	226	88	699	11	320
Stoddard	93	7,177	1	421	11	837	2	655
Stone	261	2,531	5	53	31	213	8	122
Sullivan	495	2,762	4	99	65	418	5	96
Taney	20	772	<1	17	3	111	<1	35
Texas	1,325	3,899	13	101	172	518	16	273
Vernon	850	7,901	5	248	125	994	7	480
Warren	402	2,661	5	97	50	279	6	148
Washington	185	1,555	4	30	20	206	4	66
Wayne	140	1,491	1	46	20	181	2	88
Webster	1,739	1,217	25	116	213	575	33	317
Worth	77	3,425	<1	67	10	288	1	41
Wright	863	3,536	8	110	104	515	9	257
Total	51,880	474,173	638	21,944	6,765	55,820	773	26,991
Total from other surveys [3]	59,810	482,161	731	22,187	7,958	56,608	875	27,363

[1] Missouri Agricultural Experiment Station (*160, 161*).

[2] Computed from tonnages of the various kinds and grades of fertilizer and their estimated composition.

[3] Fertilizer tonnages from table 166 and nitrogen, available phosphoric oxide, and potash tonnages from tables 7, 39, 67, respectively.

TABLE 134.—*New Mexico: Consumption of fertilizers, nitrogen, available phosphoric oxide, and potash, by counties, calendar year 1943 and year ended June 30, 1952*

County	Fertilizer [1]		Nitrogen [2]		Available phosphoric oxide [2]		Potash [2]	
	1943	1952	1943	1952	1943	1952	1943	1952
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Bernalillo	305	2,157	8	242	79	448	7	10
Chaves	1,419	3,944	-----	159	389	1,320	-----	1
Colfax	38	44	-----	<1	15	19	-----	<1
Curry	-----	15	-----	2	-----	3	-----	-----
De Baca	75	170	-----	3	32	61	-----	-----
Dona Ana	1,037	5,372	30	921	344	966	10	1
Eddy	666	2,361	2	188	258	687	2	10
Grant	-----	40	-----	<1	-----	9	-----	-----
Guadalupe	-----	51	-----	<1	-----	23	-----	<1
Hidalgo	-----	210	-----	58	-----	22	-----	-----
Lea	-----	982	-----	164	-----	244	-----	18
Luna	40	1,144	-----	213	17	201	-----	<1
Otero	30	-----	2	-----	4	-----	2	-----
Quay	30	661	7	33	-----	233	-----	<1
Rio Arriba	55	-----	-----	-----	24	-----	-----	-----
Roosevelt	45	413	1	34	18	151	-----	<1
San Juan	175	466	9	5	57	179	-----	-----
San Miguel	2	-----	-----	-----	-----	-----	-----	-----
Santa Fe	22	115	-----	14	9	28	-----	2
Socorro	-----	165	-----	12	-----	57	-----	-----
Torrance	-----	173	-----	22	-----	41	-----	-----
Valencia	170	493	-----	13	74	184	-----	-----
Total	4,109	18,976	68	2,084	1,320	4,876	21	44
Total from other surveys [3]	4,794	19,080	68	2,085	1,613	4,951	23	49

FOOTNOTES FOR TABLE 134:

[1] New Mexico Feed and Fertilizer Control Office (*180*).

[2] Computed from the tonnages of the various kinds and grades of fertilizer and their estimated composition.

[3] 1943, fertilizer tonnage from table 105, nitrogen, available phosphoric oxide, and potash tonnages from tables 7, 39, 67, respectively; 1952, Scholl and Wallace (*222*).

TABLE 135.—*North Carolina: Consumption of fertilizers, by counties, selected calendar years 1929–51*

County and district	1929 [1]	1930 [1]	1942 [2]		1946 [2]	1949 [2]	1950 [2]	1951 [2]
			Top dressing	All fertilizers				
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Alleghany	1,370	1,310	8	1,080	2,830	2,757	3,520	4,701
Ashe	2,026	3,065	100	5,000	5,600	6,762	6,473	7,883
Avery	637	1,358	25	1,700	1,980	2,536	2,393	2,231
Caldwell	1,533	1,633	165	2,040	2,630	-----	-----	3,095
Surry	9,089	9,551	1,290	10,200	15,000	14,632	15,782	16,998
Watauga	1,655	2,864	35	3,530	4,520	5,749	4,840	4,965
Wilkes	3,341	3,392	350	3,640	5,400	5,534	-----	6,219
Yadkin	5,568	5,944	475	7,100	10,900	11,683	11,591	12,511
Northern mountain	25,819	29,117	2,448	35,250	48,860	[4] 52,597	[4] 53,170	58,600
Buncombe	1,353	2,446	390	1,800	3,240	3,501	4,090	5,765
Burke	2,095	2,045	125	2,410	4,260	-----	3,041	-----
Cherokee	1,149	1,052	32	1,070	1,760	1,394	1,869	2,313
Clay	367	566	49	570	810	922	989	1,050
Graham	190	349	9	285	690	811	677	765
Haywood	909	1,588	87	1,850	2,550	3,282	3,201	3,445
Henderson	1,916	3,021	215	3,720	6,400	6,585	7,438	7,905
Jackson	538	1,226	95	1,360	2,000	1,923	1,768	1,829
McDowell	684	474	55	730	1,110	1,327	1,242	1,349
Macon	553	1,541	97	1,640	5,000	2,742	2,768	3,031
Madison	1,228	2,194	105	2,690	4,370	5,438	5,340	5,509
Mitchell	681	1,094	16	1,880	1,040	2,044	1,884	1,864
Polk	2,718	2,636	275	2,690	2,730	3,750	3,400	3,000
Rutherford	10,953	9,378	1,360	11,400	12,000	13,778	10,775	9,606
Swain	162	439	23	175	540	238	370	516
Transylvania	684	861	105	1,060	1,980	1,581	1,702	1,797
Yancey	577	1,493	150	1,480	2,820	3,004	3,362	3,382
Western mountain	26,757	32,403	3,278	38,810	55,700	[4] 55,230	53,716	[4] 56,289
Alamance	7,091	6,662	420	6,500	11,200	10,350	10,321	11,641
Caswell	8,883	8,804	690	7,200	11,400	11,371	11,500	12,602
Durham	4,300	3,782	400	3,380	4,750	4,521	4,813	5,808
Forsyth	7,390	6,166	405	6,400	9,600	9,145	9,767	11,050
Franklin	10,336	10,796	3,310	15,200	19,600	20,564	20,217	22,247
Granville	15,089	14,445	1,430	13,200	15,800	15,382	16,148	18,401
Guilford	9,947	11,508	405	11,000	15,500	15,650	16,205	17,748
Orange	4,885	4,245	420	4,280	6,000	7,107	7,282	8,000
Person	10,533	10,209	660	8,600	12,400	11,482	12,180	13,178
Rockingham	11,134	12,271	1,640	11,400	16,500	15,519	16,825	18,909
Stokes	10,349	10,542	1,000	10,000	13,700	14,041	14,232	14,624
Vance	10,936	10,312	660	9,200	11,700	12,156	-----	12,864
Warren	12,187	9,042	2,480	9,300	11,400	13,544	12,435	13,838
Northern Piedmont	132,150	124,784	13,920	115,660	159,550	160,618	[4] 164,361	181,000

See footnotes at end of table, p. 147.

TABLE 135.—*North Carolina: Consumption of fertilizers, by counties, selected calendar years 1929–51*—Continued

County and district	1929 [1]	1939 [1]	1942 [2]		1946 [2]	1949 [2]	1950 [2]	1951 [2]
			Top dressing	All fertilizers				
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Alexander	3,401	2,897	245	3,500	4,590	4,630	4,665	5,080
Catawba	7,087	6,203	485	7,000	9,100	10,653	9,223	10,419
Chatham	8,064	6,460	540	6,400	8,800	8,166	7,953	9,378
Davidson	5,490	6,027	700	6,900	8,210	9,016	9,360	11,373
Davie	2,821	2,580	78	3,500	7,100	4,942	5,116	5,796
Iredell	9,182	8,672	870	9,900	16,000	14,752	14,274	15,498
Lee	7,546	6,580	920	5,400	7,200	7,164	7,554	8,530
Randolph	6,753	6,777	225	7,800	10,400	10,485	10,304	13,092
Rowan	7,932	6,612	240	7,900	9,980	11,488	12,586	11,429
Wake	33,132	25,866	4,410	23,000	28,900	32,086	31,064	34,848
Central Piedmont	91,388	78,654	8,713	81,300	110,200	113,382	112,099	125,443
Anson	18,817	11,685	2,120	13,000	14,500	17,101	15,558	17,687
Cabarrus	6,407	4,428	490	5,100	7,300	9,021	8,681	8,080
Cleveland	28,382	21,700	5,100	23,600	29,900	37,016	27,564	29,841
Gaston	7,159	5,444	670	6,300	7,500	8,416	7,109	7,446
Lincoln	8,002	7,138	1,330	7,200	14,300	11,655	10,797	10,897
Mecklenburg	11,833	7,853	1,370	8,800	9,700	10,330	9,178	9,972
Montgomery	5,506	4,159	620	5,100	4,500	5,540	4,652	5,389
Moore	9,906	7,546	970	7,000	9,700	9,201	9,333	10,749
Richmond	13,415	7,804	1,600	8,500	8,000	7,894	7,602	10,407
Stanly	6,888	5,871	1,100	7,500	10,400	12,064	10,246	12,874
Union	20,601	16,714	2,440	17,700	22,200	23,417	21,734	23,662
Southern Piedmont	136,916	100,342	17,810	109,900	138,000	151,655	130,454	147,604
Bertie	16,083	12,149	2,200	13,300	17,000	17,318	16,681	18,704
Camden	3,954	5,541	18	7,100	10,500	9,060	7,729	7,970
Chowan	6,124	6,057	1,190	6,000	6,600	7,213	7,540	7,778
Currituck	5,063	5,278	200	5,600	9,200	10,207	10,526	9,526
Dare	79	72		55				
Edgecombe	34,038	20,168	3,880	20,100	24,000	29,385	28,723	31,223
Gates	7,155	5,917	1,020	8,500	6,200	7,817	7,687	8,623
Halifax	31,595	20,171	3,610	21,500	26,400	28,925	25,839	29,538
Hertford	12,364	8,426	630	8,900	9,830	12,450	11,350	13,073
Martin	19,114	15,621	2,890	17,300	20,200	20,988	21,032	23,109
Nash	36,340	27,712	3,860	27,300	33,800	37,028	36,661	41,048
Northampton	22,663	12,047	3,240	16,600	19,100	19,542	17,284	19,539
Pasquotank	7,763	7,164	220	7,200	11,500	11,729	11,768	13,296
Perquimans	6,981	4,208	750	5,400	6,200		6,701	7,572
Tyrrell	3,342	3,398	87	3,180	3,900	4,089	3,934	3,542
Washington	4,246	3,212	405	2,870	3,200	4,787	4,363	5,208
Northern coastal	217,804	157,141	24,268	168,905	[3] 207,630	[3] 227,191	[3] 217,818	[3] 239,744
Beaufort	17,474	19,467	1,220	17,300	19,500	21,524	20,972	23,225
Carteret	3,571	4,032	425	4,710	4,900	5,408	5,359	5,131
Craven	10,343	11,207	1,480	9,700	13,100	14,038	14,160	15,219
Greene	21,744	14,446	2,900	15,300	18,700	21,779	21,327	24,162
Hyde	2,530	2,180	23	3,410	4,500	3,691	3,493	4,370
Johnston	46,454	40,824	6,400	41,000	47,200	49,706	51,258	58,080
Jones	6,546	7,927	910	7,400	8,200	8,804	9,745	10,861
Lenoir	25,284	20,879	2,490	19,000	25,600	27,488	28,114	31,020
Pamlico	5,412	8,660	170	6,900	7,300	7,020	6,173	5,850
Pitt	44,396	34,093	3,790	31,200	40,400	40,310	41,495	47,805
Wayne	31,364	24,119	3,430	29,000	33,800	34,440	34,230	38,988
Wilson	31,497	23,915	3,180	22,600	27,000	30,543	30,959	34,703
Central coastal	246,615	211,689	26,418	207,520	250,200	264,749	267,285	299,414
Bladen	8,872	11,473	1,660	[4] 11,160	13,700		15,938	17,319
Brunswick	3,119	5,111	410	4,770	6,200	7,194	7,792	8,398
Columbus	15,678	23,024	3,050	21,300	24,500	29,303	29,420	31,915
Cumberland	17,546	14,093	1,770	14,000	15,900	19,831	18,013	20,039
Duplin	26,198	26,266	3,280	27,300	31,800	35,958	36,212	37,892
Harnett	25,802	23,564	3,430	24,400	26,500	30,818	29,940	35,190
Hoke	16,335	9,552	2,180	10,500	11,400	14,086		
New Hanover	2,655	3,177	255	2,620	2,100	3,021	2,182	2,717
Onslow	7,243	8,796	790	7,400	9,000	10,646	10,545	12,514
Pender	5,940	7,766	830	6,700	8,300	8,292	9,758	10,539
Robeson	49,002	39,159	6,400	40,400	49,500	51,830		60,223
Sampson	35,906	31,693	6,000	33,700	35,400	44,473	41,587	45,651
Scotland	15,958	10,119	2,370	13,900	12,800	15,094	12,683	14,946
Southern coastal	230,314	213,793	32,425	218,090	247,100	[3] 285,320	[3] 278,225	[3] 312,049
Total [4]	1,107,763	947,923	129,280	973,435	[3] 1,217,240	[3] 1,311,248	[3] 1,277,128	[3] 1,419,543

[1] "Census of Agriculture" (*277*).

[2] North Carolina Department of Agriculture and U. S. Department of Agriculture (*183*). Farmers in North Carolina are required by law to fill out a form for the county tax supervisor giving, among other information, the quantity of commercial fertilizer used during the previous year. When these forms have served their local purpose, they are turned over to the Federal-State Crop Reporting Service. Forms from 90 to 97 percent of all farmers are received. When all forms for a county are not received, or the county commissioners fail to report, estimates are made to complete the census.

[3] Includes estimates for counties not reporting

[4] These totals are substantially less than the tonnages sold by fertilizer manufacturers as reported to the North Carolina Commissioner of Agriculture or the quantity of tax tags sold, but they represent usage by farmers only.

TABLE 136.—*Oklahoma: Consumption, by counties, of fertilizers, calendar years 1929 and 1939, and of fertilizers, nitrogen, available phosphoric oxide, and potash, year ended June 30, 1950*

County	Fertilizer [1]			Nitrogen 1950 [2]	Available phosphoric oxide 1950 [2]	Potash 1950 [2]
	1929	1939	1950			
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Adair	97	58	1,878	53	272	45
Alfalfa	20	(3)	673	17	137	7
Atoka	25	14	662	28	84	30
Beaver	18					
Beckham	49	(3)	1,623	56	211	59
Blaine	42		1,312	56	218	16
Bryan	146	66	4,728	142	539	148
Caddo	44	4	3,840	96	673	72
Canadian	12	46	3,261	86	504	73
Carter	37	21	1,011	14	112	16
Cherokee	10	11	518	19	75	19
Choctaw	264	190	1,468	61	195	52
Cimarron			15	1	2	0
Cleveland	22	13	1,403	15	224	15
Coal	3	22	2,101	65	308	66
Comanche	32	4	685	13	121	9
Cotton	4		617	5	137	1
Craig	144	124	2,851	44	374	49
Creek	57	14	1,159	33	130	36
Custer	47		3,154	56	683	26
Delaware	145	110	992	5	41	4
Dewey	17		497	16	77	13
Ellis	26		112	2	21	1
Garfield	71	16	3,868	182	673	50
Garvin	61	1	3,342	97	574	55
Grady	24	25	2,201	96	271	44
Grant	9	(3)	841	10	215	1
Greer	3	(3)	411	12	62	13
Harmon	4		27	0	5	0
Harper	15		48	1	3	0
Haskell	603	84	2,401	151	320	72
Hughes	257	291	3,012	121	388	123
Jackson	67	(3)	476	31	80	8
Jefferson	29	4	711	9	50	10
Johnston	8	8	635	13	67	12
Kay	54	3	7,039	105	988	23
Kingfisher	27	(3)	2,317	34	222	23
Kiowa	19		365	9	50	5
Latimer	6	6	278	7	30	6
Le Flore	1,061	908	2,637	135	299	72
Lincoln	77	83	2,262	55	284	44
Logan	34	39	2,429	37	378	18
Love	15	9	799	9	117	12
McClain	5	2	1,834	19	271	16
McCurtain	629	246	2,336	151	236	67
McIntosh	187	68	3,299	185	364	118
Major	16	(3)	849	32	88	3
Marshall			467	7	66	8
Mayes	160	82	1,746	28	184	30
Murray	8	(3)	637	7	88	6
Muskogee	248	242	4,812	217	491	132
Noble	154	9	2,652	19	597	5
Nowata	31	29	1,544	14	229	12
Okfuskee	296	179	2,207	77	286	61
Oklahoma	69	56	4,584	171	510	99
Okmulgee	149	44	2,293	53	274	59
Osage	21	41	2,880	4	148	4
Ottawa	688	590	3,026	115	415	103
Pawnee	16	10	1,650	41	254	20
Payne	47	11	2,362	63	313	24
Pittsburg	176	126	5,059	192	651	171
Pontotoc	41	30	959	28	109	15
Pottawatomie	140	40	2,136	101	299	43
Pushmataha	54	79	717	26	80	26
Roger Mills	71		349	9	69	8
Rogers	47	32	2,101	30	219	30
Seminole	52	55	1,374	52	137	28
Sequoyah	183	174	787	50	101	23
Stephens	65	74	1,888	41	245	50
Texas	34		74	13	8	0
Tillman	116		928	20	152	10
Tulsa	120	91	5,481	215	521	125
Wagoner	300	184	3,006	126	435	103
Washington	26	78	1,210	12	107	10
Washita	25		1,838	62	259	61
Woods	8	(3)	218	14	57	3
Woodward	8	(3)	296	11	59	3
Total	7,895	4,814	138,948	4,202	18,542	2,823
Total from other surveys [4]	9,422	7,749	141,266	4,262	18,554	2,866

[1] 1929, U. S. Bureau of the Census (*277*); nonfarm fertilizers are not included. 1939, National Fertilizer Association (*174*); does not include Government distribution or nonfarm use. 1950, Oklahoma State Department of Agriculture (*136*).

[2] Computed from the tonnages of various kinds and grades of fertilizer and their estimated composition.

[3] Less than 3 farms reported; the quantity is included in the total.

[4] 1929 and 1939, table 106; 1950, Scholl and Wallace (*220*).

TABLE 137.—*South Carolina: Consumption of fertilizers, by counties, calendar year 1939 and year ended June 30, 1955*

County	1939 [1]	1955 [2]	County	1939 [1]	1955 [2]
	Tons	*Tons*		*Tons*	*Tons*
Abbeville	7,502	6,666	Horry	28,957	35,534
Aiken	16,279	21,906	Jasper	1,756	5,501
Allendale	6,862	14,444	Kershaw	10,683	16,501
Anderson	29,385	29,818	Lancaster	8,578	8,232
Bamberg	9,130	19,805	Laurens	15,746	17,798
Barnwell	10,120	16,531	Lee	14,616	23,474
Beaufort	6,144	13,470	Lexington	11,626	17,204
Berkeley	6,221	7,356	McCormick	2,823	2,694
Calhoun	11,565	16,744	Marion	11,082	37,018
Charleston	16,646	23,561	Marlboro	18,162	24,818
Cherokee	10,192	9,583	Newberry	9,378	12,881
Chester	8,032	10,505	Oconee	9,231	9,799
Chesterfield	18,370	27,934	Orangeburg	37,596	71,353
Clarendon	14,486	22,110	Pickens	9,856	9,106
Colleton	8,898	19,626	Richland	6,102	14,203
Darlington	16,752	33,362	Saluda	9,878	11,638
Dillon	15,968	21,210	Spartanburg	27,651	37,440
Dorchester	6,238	19,923	Sumter	17,668	37,606
Edgefield	8,968	14,836	Union	6,171	5,795
Fairfield	4,959	5,180	Williamsburg	22,649	35,766
Florence	27,477	62,371	York	12,227	17,034
Georgetown	3,778	5,455			
Greenville	18,035	20,900	Total	587,341	923,802
Greenwood	5,625	8,845	Total from other surveys [3]	672,820	
Hampton	7,193	21,006			

FOOTNOTES FOR TABLE 137:

[1] National Fertilizer Association (*174*); does not include Government distribution or nonfarm use.

[2] The Clemson Agricultural College of South Carolina (*46*).

[3] From table 106.

TABLE 138.—*Tennessee: Consumption, by counties, of fertilizers, calendar year 1939, and of fertilizers, nitrogen, available phosphoric oxide, and potash, years ended May 31, 1927 and June 30, 1949*

County	Fertilizer [1]			Nitrogen [2]		Available phosphoric oxide [2]		Potash [2]	
	1927	1939	1949	1927	1949	1927	1949	1927	1949
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Anderson	324	1,088	2,197	3	48	39	300	8	88
Bedford	475	699	4,758	6	118	65	634	8	211
Benton	579	737	2,844	5	74	82	386	6	113
Bledsoe	500	668	2,002	1.7	54	77	206	3	73
Blount	945	2,224	5,104	6	171	121	632	19	243
Bradley	1,139	1,037	4,716	11	89	161	149	19	183
Campbell	775	840	4,371	6	92	97	611	17	169
Cannon		640	1,455		38		194		60
Carroll	1,521	2,001	9,472	28	312	183	1,219	36	300
Carter	772	1,034	3,587	3	80	94	526	22	143
Cheatham	351	1,525	3,898	5	164	44	454	9	158
Chester	1,600	1,809	4,656	47	196	177	509	34	240
Claiborne	1,980	2,489	7,175	7	244	260	786	36	358
Clay	160	537	1,520	.4	65	20	176	.6	66
Cocke	1,670	2,105	3,890	18	117	211	503	39	152
Coffee	1,251	2,626	7,496	5	223	165	861	27	387
Crockett	450	1,387	6,617	16	272	47	702	25	435
Cumberland	938	1,404	4,676	10	130	120	638	14	182
Davidson	147	888	7,589	2	403	19	943	3	274
Decatur	827	503	1,748	11	57	99	227	20	69
De Kalb	192	795	2,698	6	56	18	378	6	114
Dickson	922	1,190	4,297	9	130	137	616	14	142
Dyer	195	604	3,771	15	225	13	438	4	210
Fayette	341	500	5,427	3	283	51	586	3	242
Fentress	520	1,036	3,167	6	106	62	386	14	143
Franklin	2,707	4,057	10,108	51	328	312	1,150	101	510
Gibson	2,567	5,022	14,257	97	742	251	1,567	128	527
Giles	552	870	3,082	8	225	68	303	11	142
Grainger	1,041	1,818	3,651	21	94	101	512	42	138
Greene	3,266	0,020	13,490	7	363	424	1,819	76	529
Grundy	262	466	1,304	5	44	20	169	7	69
Hamblen	2,506	1,881	4,569	13	98	328	670	51	172
Hamilton	1,218	1,256	5,341	21	136	135	696	28	243
Hancock		878	2,490		69		315		107
Hardeman	1,110	2,122	7,509	15	470	148	653	20	400
Hardin	751	811	1,803	15	68	82	191	21	85
Hawkins	1,387	2,464	7,457	3	168	176	1,055	36	275
Haywood	248	844	8,035	10	406	22	767	4	536
Henderson	2,558	2,726	9,946	64	459	302	1,643	50	503
Henry	704	1,023	3,993	6	131	100	470	10	180
Hickman	351	329	2,211	1.4	67	54	268	2	100
Houston	68	109	1,061	2	20	8	173	1.3	22
Humphreys	282	328	1,890	2.1	63	38	219	6	93
Jackson		204	1,714		59		202		80
Jefferson	3,550	2,626	6,153	16	152	523	867	38	243
Johnson	921	077	2,673	5	84	115	360	23	134
Knox	2,760	2,276	14,020	21	493	377	1,754	39	638
Lake	142	273	1,780	5	113	14	151	8	92
Lauderdale	80	1,242	3,402	5	267	8	238	2	366
Lawrence	4,767	5,230	13,904	58	476	584	1,507	100	717
Lewis	155	167	924	2	34	21	108	3	44
Lincoln	1,139	2,539	5,757	20	225	138	650	22	306
Loudon	1,000	1,217	5,011	10	144	207	951	34	214
McMinn	1,773	2,158	5,701	7	183	257	791	21	221
McNairy	3,932	2,915	8,883	108	305	420	996	122	557
Macon	311	1,124	6,042	.6	152	40	845	2	224
Madison	1,588	2,821	8,472	49	447	170	1,013	47	513
Marion	194	512	807	2	24	25	117	4	37
Marshall	246	160	3,125	3	105	35	434	3	130
Maury	181	123	2,787	5	165	15	342	10	133
Meigs		594	663		26		74		35
Monroe	2,064	1,888	5,904	17	169	265	798	46	229
Montgomery	1,933	3,376	11,888	24	496	245	1,469	47	432
Moore		107	523		17		57		28
Morgan	477	1,019	1,854	11	42	52	243	13	84
Obion	137	458	4,138	2	147	19	481	2	234
Overton	1,916	1,192	3,273	3	81	284	430	22	136
Perry		16	538		20		70		33
Pickett	148	764	1,251	.4	47	23	148	1	56
Polk	577	961	1,187	9	34	69	145	12	52
Putnam	1,614	971	6,777	4	207	247	905	11	258
Rhea	782	755	2,307	8	48	103	314	14	90
Roane	521	961	2,072	4	66	65	265	13	93
Robertson	5,066	7,212	18,124	78	650	503	2,290	169	729
Rutherford	1,347	1,388	8,244	17	238	169	1,147	40	356
Scott	271	522	1,511	3	55	32	160	9	88
Sequatchie	110	253	559	2	23	13	84	3	26
Sevier	1,052	1,725	5,511	8	169	141	732	21	205
Shelby	486	1,610	10,389	20	960	46	990	13	472
Smith	50	26	2,782	.1	164	8	284	.2	128
Stewart	51	972	2,545	1	78	6	297	1.6	120
Sullivan	1,610	3,098	5,171	8	112	192	772	45	199
Sumner	2,519	2,430	7,036	22	207	333	1,005	48	278
Tipton	176	1,795	3,256	9	257	16	274	9	407
Trousdale	396	24	676	2	36	59	101	3	24
Unicoi	292	525	574	2	17	38	69	5	28
Union	15	910	1,137		37	2	134	.5	53
Van Buren	20	226	924		14	3	150		23
Warren	1,728	2,435	8,964	6	210	239	1,145	28	442
Washington	3,572	3,457	9,718	23	270	487	1,384	89	339
Wayne	322	519	1,195	2	56	47	120	3	56
Weakley	632	1,000	5,549	18	130	66	815	24	226
White	1,058	1,408	5,114	2	105	165	730	5	215
Williamson	52	468	2,403	1.4	88	6	371	1.8	92
Wilson	258	267	3,192	.9	99	30	436	2	140
Total	95,687	136,971	450,230	1,172	16,627	12,050	55,153	2,163	20,388
Total from other surveys [3]		153,647	499,048		18,921		61,519		23,193

[1] 1927 and 1949, Tennessee Department of Agriculture (*239*). 1939, National Fertilizer Association (*174*); does not include Government distribution or nonfarm use.

[2] Computed from the tonnages of the various kinds and grades of fertilizer and their estimated composition. No data are available by which the nutrients used in 1939 may be computed.

[3] 1939, table 100; 1949, Scholl and Wallace (*218*).

TABLE 139.—*Texas: Consumption, by counties, of fertilizers, years ended Aug. 31, 1919, 1929, and 1939, and of fertilizers, nitrogen, available phosphoric oxide, and potash, calendar year 1949*

County	Fertilizer				Nitrogen 1949 [5]	Available phosphoric oxide 1949 [5]	Potash 1949 [5]
	1919 [1]	1929 [2]	1939 [3]	1949 [4]			
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Anderson	448	1,804	949	7,643	299	954	326
Angelina	283	3,133	1,214	2,089	72	430	113
Aransas		37	4				
Archer			21	309	2	63	
Atascosa		977	691	3,603	116	572	89
Austin	313	486	129	4,457	63	764	63
Bailey			2	1,025	23	223	2
Bandera				145	2	28	1
Bastrop		192	115	2,703	54	456	53
Baylor		1	5	253	1	50	1
Bee	1	73	26	2,038	22	408	9
Bell	4	4	57	3,418	19	723	5
Bexar	50	400	280	3,287	98	448	91
Blanco				166	1	33	1
Bosque	2		12	1,307	24	271	5
Bowie	2,413	6,687	2,147	5,140	246	598	242
Brazoria		384	165	5,791	302	950	97
Brazos	190	326	202	3,165	129	514	52
Brewster	1			196	10	23	3
Brooks		197	374	1,850	70	240	68
Brown	37	29	25	1,255	26	403	12
Burleson	1	625	138	2,792	40	526	21
Burnet				390		92	
Caldwell		33	33	1,523	38	339	13
Calhoun	1	13	18	579	39	116	2
Callahan		20	17	544	14	97	8
Cameron	210	901	913	7,975	677	876	179
Camp	345	1,114	1,732	4,103	194	430	220
Carson				40	13		
Cass	2,080	10,738	4,233	7,517	391	807	340
Castro				267	22	38	6
Chambers	480	194	1,129	3,195	161	466	95
Cherokee	2,861	8,751	3,394	9,456	451	1,129	399
Childress	129	3	37	147		36	
Clay		16	2	1,384	11	288	4
Coke	60						
Coleman		50	1	324	6	88	1
Collin		3	25	1,174	10	246	3
Collingsworth			12	336	44	161	10
Colorado	32	161	248	5,698	150	1,050	69
Comal	1		3	279	3	74	2
Comanche	2	271	941	5,128	131	815	126
Concho	32			70		15	
Cooke	63	21	42	959	15	178	10
Coryell	1	86	4	644	4	227	1
Crockett		1					
Crosby		1					
Dallam				69		14	
Dallas	36	529	671	4,772	317	480	132
Dawson		1					
Deaf Smith				1,748	318	222	7
Delta		19	9	2,256	60	387	36
Denton	1	40	43	1,570	25	379	13
De Witt	300	387	602	3,582	53	749	41
Dickens				188		38	1
Dimmit		605	217	1,383	63	190	26
Donley			24	471	19	71	12
Duval			17	411	5	74	6
Eastland		198	643	4,650	115	759	109
Ector		1	4	110	4	10	4
Ellis	1	32	17	2,275	17	460	9
El Paso	25	401	1,291	6,006	698	1,211	42
Erath	70	657	178	3,299	83	620	42
Falls	40	332	66	4,342	76	856	65
Fannin		62	27	2,776	36	560	32
Fayette	2	174	152	4,912	32	901	30
Fisher	2			40		8	
Floyd		2	6	151	23	14	2
Foard				165		34	
Fort Bend	5	330	817	4,723	251	653	49
Franklin	208	414	317	1,324	52	182	42
Freestone	1,000	1,869	949	5,353	119	878	95
Frio	43	267	474	2,108	114	326	45
Gaines		1					
Galveston	105	504	243	837	18	149	15
Garza				16	1	2	1
Gillespie	30	55	4	732	20	144	9
Goliad		24	17	1,327	22	281	9
Gonzales	2	289	77	2,705	50	486	58
Gray		22	10	149	8	15	5
Grayson	2	165	58	2,402	77	380	46
Gregg	2,470	6,188	904	1,658	61	208	69
Grimes	76	1,775	601	6,862	144	1,057	98
Guadalupe	2	20	1	1,510	19	305	14
Hale		3	7	2,982	388	403	4
Hall				60	7	11	1
Hamilton		119		767	7	210	3
Hardeman			15	253	5	52	5
Hardin	240	687	386	689	47	60	29
Harris	1,507	2,164	3,186	16,744	985	2,242	389
Harrison	1,030	7,293	4,157	6,352	281	756	273
Haskell		2		234	7	45	1
Hays		18	1	927	3	242	1
Hemphill				60		18	
Henderson	910	3,316	1,399	5,913	238	733	260
Hidalgo		609	1,818	20,798	1,904	2,803	323
Hill		50	20	1,853	16	408	13
Hockley		16	1	105	12	21	0
Hood		40	49	1,702	32	289	31
Hopkins	1,009	2,574	1,475	10,514	591	1,455	295
Houston	1,080	5,412	1,780	7,614	238	968	247
Howard		110	1				
Hudspeth			16	740	81	189	1
Hunt	160	170	46	4,914	126	805	99
Hutchinson				40	2	3	1
Jack				447	1	91	1
Jackson	44	109	15	2,561	37	323	8
Jasper	1,015	1,638	1,025	2,404	111	262	98
Jefferson	2,240	1,440	3,158	7,969	705	1,190	181
Jim Hogg			23	303	14	36	13
Jim Wells		37	448	2,167	39	375	35
Johnson	3	92	55	2,081	19	393	20
Jones		55	11	226	2	44	1
Karnes	3	46	4	2,159	47	503	19
Kaufman	143	615	336	6,141	150	973	151
Kendall			26	636	21	134	6
Kenedy				763	1	344	1
Kent				60		12	
Kerr			1	164	2	32	1
Kimble			1				
King		41					
Kleberg			86	1,440	24	216	24
Lamar	225	764	499	4,919	169	712	144
Lamb				387	11	77	1
Lampasas				424	9	130	
La Salle		47	43	544	12	74	11
Lavaca		236	425	6,071	74	1,006	69
Lee	13	232	102	2,747	48	486	46
Leon	480	2,954	1,023	5,494	175	751	180
Liberty	700	2,297	1,857	6,403	426	961	161
Limestone	562	2,807	641	5,020	130	770	148
Live Oak		65	2	204	1	46	
Llano				149	4	22	4
Lubbock		32	13	968	173	38	4
Lynn		1					
McCulloch	40	54	43	572	6	153	3
McLennan	12	75	93	2,975	65	592	32
Madison	43	1,755	639	3,732	62	637	58
Marion	130	1,728	258	716	33	80	32
Martin				122	13	19	3
Mason			11	299	7	47	7
Matagorda	152	97	15	3,254	190	554	47
Maverick		112	686	3,894	155	594	94
Medina			103	2,008	49	376	41
Menard		2		43		9	
Midland		3	30	144	6	13	6
Milam	120	711	177	4,125	81	725	79
Mills	43	190	11	611	3	134	2

See footnotes at end of table, p. 151.

TABLE 139.—*Texas: Consumption, by counties, of fertilizers, years ended Aug. 31, 1919, 1929, and 1939, and of fertilizers, nitrogen, available phosphoric oxide, and potash, calendar year 1949*—Continued

County	Fertilizer				Nitrogen 1949 [5]	Available phosphoric oxide 1949 [5]	Potash 1949 [5]
	1919 [1]	1929 [2]	1939 [3]	1949 [4]			
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Mitchell	------	65	8	20	------	------	------
Montague	------	20	45	1,402	23	256	17
Montgomery	100	707	279	2,907	28	231	38
Moore	------	3	------	10	------	2	------
Morris	1,044	2,860	1,280	1,863	95	196	92
Motley	------	1	------	------	------	------	------
Nacogdoches	2,320	9,004	2,016	7,849	261	1,010	236
Navarro	36	249	176	4,281	44	824	28
Newton	143	496	364	981	38	117	44
Nolan	15	3	------	530	98	44	------
Nueces	------	334	47	1,928	42	307	35
Ochiltree	------	------	1	------	------	------	------
Oldham	------	------	------	40	13	------	------
Orange	410	921	650	786	17	119	17
Palo Pinto	------	4	1	698	16	123	10
Panola	850	5,088	2,318	3,258	156	362	146
Parker	12	99	178	1,889	33	329	29
Parmer	------	------	------	62	1	13	------
Pecos	424	109	226	454	23	147	1
Polk	110	1,220	433	1,170	31	135	34
Potter	1	5	20	181	5	20	7
Presidio	------	------	2	------	------	------	------
Rains	29	258	166	1,048	39	160	39
Randall	------	------	------	101	12	15	1
Real	------	------	------	45	7	9	------
Red River	102	1,568	758	5,222	145	785	140
Reeves	17	------	31	1,544	215	294	3
Refugio	4	49	1	987	33	182	15
Robertson	1,290	2,274	630	6,170	163	953	150
Rockwall	------	3	------	668	3	119	2
Runnels	------	9	3	56	------	16	------
Rusk	2,709	13,779	2,467	9,055	408	1,086	365
Sabine	585	1,708	752	1,344	66	154	61
San Augustine	920	2,417	623	1,811	55	229	74
San Jacinto	------	124	89	386	10	47	14
San Patricio	------	359	312	3,153	211	474	40
San Saba	------	1	5	1,254	20	245	16
Schleicher	------	------	11	------	------	------	------
Shackelford	------	------	------	55	------	11	------
Shelby	860	7,137	2,053	6,118	228	751	257
Smith	1,640	10,758	3,032	12,025	578	1,413	501
Somervell	------	------	------	547	9	94	10
Starr	------	------	------	202	------	42	------
Stephens	------	90	1	179	1	36	1
Sterling	------	1	------	15	------	3	------
Stonewall	------	------	------	65	2	15	2
Swisher	------	------	------	457	37	86	7
Tarrant	32	434	932	4,527	146	656	100
Taylor	------	52	27	428	38	46	4
Terry	------	------	1	78	10	15	------
Throckmorton	------	1	------	87	------	18	------
Titus	170	2,636	578	3,329	164	407	120
Tom Green	------	150	25	387	9	56	8
Travis	------	36	84	1,133	17	226	12
Trinity	260	2,250	707	3,149	66	352	89
Tyler	310	1,140	529	1,327	54	100	55
Upshur	970	3,200	1,245	3,909	172	475	175
Uvalde	------	53	1	1,912	58	309	16
Val Verde	------	------	4	293	6	43	10
Van Zandt	750	3,391	1,498	9,056	326	1,144	415
Victoria	------	85	53	2,360	162	389	17
Walker	------	941	238	2,499	34	299	47
Waller	420	809	815	6,880	210	947	213
Ward	246	186	224	185	9	45	3
Washington	------	102	34	3,573	41	716	11
Webb	610	2,087	1,818	4,267	220	514	152
Wharton	22	197	180	6,530	217	985	44
Wheeler	------	------	3	946	40	134	18
Wichita	------	91	84	1,623	19	324	4
Wilbarger	------	56	------	2,090	14	443	6
Willacy	------	119	11	1,729	129	299	24
Williamson	------	67	24	1,543	39	458	4
Wilson	22	209	406	4,119	104	693	85
Winkler	------	------	6	------	------	------	------
Wise	1	36	43	1,234	20	225	20
Wood	1,156	2,642	1,099	7,255	341	853	314
Young	------	36	2	631	10	133	1
Zapata	------	------	------	367	17	51	13
Zavala	------	371	808	3,130	133	597	12
Unspecified [6]	------	10,415	7,079	552	26	87	8
Total	15,985	187,215	93,115	515,597	20,985	78,635	12,048
Total based on Branch survey	------	------	------	517,789	21,042	78,880	12,074

[1] Fraps (*62*) gives sales by counties for years ended Aug. 31, 1912–26, and the nitrogen, available phosphoric oxide, and potash contents for 8 counties for most of these years.

[2] Fraps and Ogier (*63*) give data for the years end d Aug. 31, 1927–38, and details by grades for 7 counties for the year ende Aug. 31, 1937.

[3] Jackson (*83*).

[4] Texas Agricultural Experimental Station (*241*).

[5] Computed from the tonnages of the various grades and kinds of fertilizer and their estimated composition.

[6] Texas has 27 counties not listed.

TABLE 140.—*Vermont: Expenditures by farmers for fertilizers, by counties, decennial calendar years, 1879–1939* [1]

County	1879	1889	1899	1909	1919	1929	1939
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Addison	6,008	5,807	23,845	45,767	68,422	51,195	55,775
Bennington	7,640	13,434	19,330	30,361	48,256	35,886	20,201
Caledonia	20,141	25,862	41,730	42,539	57,488	38,688	45,752
Chittenden	6,444	14,952	28,820	42,952	91,611	72,915	64,352
Essex	2,209	3,583	10,000	13,361	18,841	12,516	11,128
Franklin	5,340	9,531	31,210	55,571	93,127	79,245	72,535
Grand Isle	393	1,042	1,650	6,230	13,025	10,337	9,903
Lamoille	3,889	8,188	29,500	27,138	46,358	27,281	23,316
Orange	14,912	24,891	43,840	41,966	107,534	53,286	30,833
Orleans	9,285	19,266	35,270	53,563	47,326	57,452	54,511
Rutland	9,141	17,204	33,270	47,549	65,949	53,959	50,715
Washington	7,535	24,190	47,060	44,458	75,189	56,163	28,333
Windham	12,668	21,634	51,800	59,998	33,321	66,282	41,077
Windsor	21,945	27,723	49,480	59,299	90,826	66,054	39,766
Total	127,670	217,397	[2]446,805	570,752	857,273	681,259	548,797

[1] 1879–1919, Hills (*77*); 1929–39, U. S. Bureau of the Census (*276*).

[2] Revised.

TABLE 141.—*Estimated percentage of total fertilizer purchased monthly, triennial averages 1936–47 and annually 1948–54* [1]

Month	3-year averages				1948	1949	1950	1951	1952	1953	1954
	1936–38	1939–41	1942–44	1945–47							
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
January	7.9	8.6	16.4	15.8	15.4	13.3	9.2	14.4	10.3	8.4	6.0
February	13.4	13.4	18.7	14.9	12.3	15.1	13.6	12.4	12.0	12.9	13.0
March	31.0	28.0	18.1	14.9	15.6	19.8	17.2	15.3	16.3	21.4	20.7
April	22.5	23.2	11.4	10.5	11.7	12.4	14.3	13.3	16.2	20.0	20.0
May	6.0	6.7	5.7	6.2	7.0	7.6	10.4	9.4	10.4	9.9	11.4
June	2.0	2.3	2.3	3.3	4.1	3.9	4.7	4.8	4.7	4.6	5.4
July	1.1	1.0	1.9	3.9	3.9	3.2	3.0	2.9	3.5	2.3	2.0
August	2.8	2.9	3.5	4.1	3.7	2.7	3.2	3.3	3.7	2.7	1.9
September	4.5	4.1	4.2	5.4	6.3	5.3	4.8	4.7	5.7	3.6	3.7
October	2.8	3.6	4.0	5.9	5.7	5.4	5.1	6.7	5.2	5.1	5.9
November	2.3	2.4	6.3	6.2	6.0	5.2	6.7	7.0	5.4	4.3	5.7
December	3.7	3.8	7.5	8.9	8.3	6.1	7.8	5.8	6.6	4.8	4.3
Number of States [2]	17	17	17	17	15	14	13	13	13	10	10
Percent of tonnage [2]	70.4	69.3	69.6	64.2	58.7	59.7	59.6	56.3	56.0	41.5	41.8

[1] Computed from tax tag sales and reported shipments as compiled by the National Fertilizer Association (*169, 175*).

[2] Data is for only certain Central and Southern States—Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas, Indiana, Illinois, Missouri, and Kansas—and, starting in 1951, California.

[3] Percentage of total fertilizer distributed in continental United States exclusive of phosphate rock for direct application, materials not guaranteed to contain nitrogen, available phosphoric oxide, and potash, and materials distributed by Government agencies.

TABLE 142.—*Fertilizer movement: Inbound and outbound shipments, by region and type of transportation, year ended June 30, 1951* [1]

Type of transportation	New England		Middle Atlantic		South Atlantic		North Central		South Central		Mountain and Pacific		United States	
	Quantity	Part of total	Quantity	Part of total	Quantity	Part of total	Quantity	Part of total	Quantity	Part of total	Quantity	Part of total	Quantity	Part of total
	Tons	*Percent*	*Tons*	*Percent*	*Tons*	*Percent*	*Tons*	*Percent*	*Tons*	*Percent*	*Tons*	*Percent*	*Tons*	*Percent*
Inbound:														
Rail	4,400	3.1	223,887	29.2	987,030	68.6	648,753	90.4	274,098	76.7	6,007	39.7	2,144,175	62.3
Water and rail	4,076	2.8	70,508	9.2	127,427	8.9	45,114	6.3	18,657	5.2	5,806	38.8	271,648	7.9
Water	134,331	93.7	455,839	59.4	315,840	21.9	16,885	2.3	64,617	18.0	2,000	13.2	989,512	28.8
Truck	518	.4	17,348	2.2	8,401	.6	7,165	1.0	115	<.1	1,258	8.3	34,805	1.0
Total movement	143,325	100.0	767,582	100.0	1,438,698	100.0	717,917	100.0	357,487	100.0	15,131	100.0	3,440,140	100.0
Outbound:														
Rail	92,324	53.6	400,248	48.2	1,455,721	83.8	541,600	86.7	423,069	95.3	4,260	20.6	2,917,225	76.1
Water and rail	10,412	6.1	1,228	.1	3,499	.2	96	<.1	567	.1	1,340	6.5	17,142	.4
Water	52,411	30.5	238,575	28.6	22,509	1.3	2,368	.3	1,375	.3	0	0	317,238	8.3
Truck:														
Common carrier	1	.....	407	<.1	5,353	.3	11,367	1.8	394	.1	500	2.4	18,022	.5
Contract	4,268	2.5	50,233	6.0	110,863	6.4	27,570	4.4	5,830	1.3	3,102	15.0	201,866	5.3
Owned by fertilizer manufacturer	5,500	3.2	23,454	2.8	10,781	.6	2,335	.4	0	0	7,563	36.6	49,633	1.3
Owned by buyer	4,131	2.4	111,603	13.4	108,055	6.3	10,003	1.6	10,128	2.3	3,894	18.9	279,014	7.3
Unclassified	3,000	1.7	7,016	.8	19,234	1.1	65	<.1	2,500	.6	0	.....	31,815	.8
Total truck	16,900	9.8	192,713	23.1	255,186	14.7	81,340	13.0	19,132	4.3	15,059	72.9	580,350	15.2
Total movement	172,047	100.0	832,764	100.0	1,736,918	100.0	625,404	100.0	444,163	100.0	20,659	100.0	3,831,955	100.0
Number of fertilizer companies reporting	10		40		95		33		30		7		215	

[1] National Fertilizer Association (*178*). It is estimated that 55 percent of the total consumption of fertilizer was included in the survey.

TABLE 143.—*Movement of phosphate rock, crude (ground or not ground): Originated and terminated on class I railways, by regions and States, calendar years 1935, 1940, 1945, and 1950* [1]

State and region	1935		1940		1945		1950	
	Originated	Terminated	Originated	Terminated	Originated	Terminated	Originated	Terminated
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
New England			10,536	11,092	226	21,867	67,528	105,606
New York			225	4,720	1,227	78,367	9,856	204,050
New Jersey			145	79	9,819	135,167	36,985	9,713
Pennsylvania			1,041	5,657	33,272	58,431	39,164	122,914
Delaware			0	30	2,386	40,150	34	6,025
Maryland			3,839	73	1,818	240,162	283,056	42,339
District of Columbia			0	0	0	1,522	0	201
West Virginia			25	1,138	119	67	400	26,059
Middle Atlantic			5,275	11,697	48,643	553,866	370,095	411,301
Virginia	57	9,268	605	4,635	242	218,263	133,093	188,297
North Carolina			0	51,340	96	217,038	131,004	365,884
South Carolina			0	154,092	182	247,550	170,781	441,905
Georgia			664	193,265	2,412	465,054	243,428	557,569
Florida	4,450,882	4,064,701	5,008,942	4,317,161	7,537,157	4,063,010	16,288,435	11,661,748
South Atlantic			5,010,271	4,720,493	7,540,089	5,210,915	16,966,741	13,215,403
Ohio			254	116,962	768	295,791	99,217	547,993
Indiana			57	82,559	292	149,302	25,928	385,104
Illinois			185	135,476	26,107	616,657	86,346	1,027,161
Michigan			143	7,577	2,500	50,603	5,127	138,161
Wisconsin	25	479	0	131	1,068	2,713	38,037	139,266
East North Central			639	342,705	30,735	1,115,156	254,655	2,237,535
Minnesota	0	124	0	639	30	1,791	1,254	127,947
Iowa	984	243	0	1,012	0	7,957	46,350	227,746
Missouri	0	205	18	4,086	490	45,203	6,631	282,526
North Dakota	0	0	0	0	0	0	0	15,037
South Dakota	167	0	200	26	0	135	20	2,200
Nebraska	0	0	0	0	0	1,635	97	32,649
Kansas	20	0	0	558	85	332	181	89,399
West North Central	1,091	572	218	6,351	605	57,053	54,538	777,504
Kentucky			22,295	24,207	18,854	34,107	2,637	203,787
Tennessee			673,755	179,879	969,421	265,104	1,250,798	338,914
Alabama			11,740	265,319	11,093	556,521	257,252	787,448
Mississippi			0	24,066	35	50,868	56,473	133,685
East South Central			707,790	493,411	999,403	906,660	1,576,160	1,963,829
Arkansas	0	3,442	76	6,409	477	60,916	29,257	129,016
Louisiana			44	16,413	223	117,287	88,887	147,417
Oklahoma	0	226	0	481	149	5,023	1,053	68,554
Texas	0	2,487	98	4,273	215	37,097	99,803	194,586
West South Central			220	27,576	1,064	220,323	217,100	539,573
Montana	23,108	82	74,706	0	179,328	0	286,016	6,817
Idaho	46,205	0	105,156	30	144,989	34,650	492,663	349,155
Wyoming	40	0	0	0	37	0	171,703	4,688
Colorado	0	0	0	0	0	66	0	19,180
New Mexico	0	0	0	0	0	0	70	7,917
Arizona	0	0	0	0	0	40	159	20,040
Utah	0	0	1,150	1,150	22	0	151	8,503
Nevada	0	8	0	0	0	44	30	852
Mountain	69,353	82	181,012	1,180	324,296	34,800	950,794	418,052
Washington	0	202	18	41	0	136	10,228	36,990
Oregon	0	38	0	61	84	2,299	135	31,677
California	38	8,682	164	6,773	326	32,732	45,434	147,596
Pacific	38	8,922	182	6,875	410	35,167	55,797	216,263
Total			5,916,113	5,621,380	8,945,471	8,155,807	20,513,403	19,885,066

[1] U. S. Bureau of Transport Economics and Statistics (*220, 221*); superseded according to the Interstate Commerce Commission classification. In 1950, 96.5 percent of the total revenue ton-miles of rail freight was handled by class I railways (those having gross receipts of over $1,000,000 annually). The reports on the basis recorded here were discontinued with 1950, but similar data may be estimated for later years from 1-percent sample reports (*223*).

TABLE 144.—*Movement of fertilizers, n.o.s.: Originated and terminated on class I railways, by regions and States, calendar years 1935, 1940, 1945, and 1950* [1]

State and region	1935		1940		1945		1950	
	Originated	Terminated	Originated	Terminated	Originated	Terminated	Originated	Terminated
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
New England			180,274	254,050	330,207	572,700	138,668	260,406
New York			195,974	409,418	253,030	672,120	145,059	320,608
New Jersey			173,646	107,743	332,036	234,370	107,290	111,118
Pennsylvania			354,470	514,001	481,437	904,001	351,262	301,869
Delaware			7,583	41,215	13,003	86,736	11,324	14,902
Maryland			491,379	310,908	1,060,382	304,035	276,726	319,538
District of Columbia			5,662	3,853	18,317	2,954	16,802	3,797
West Virginia			140,305	127,943	193,572	155,328	459,609	94,838
Middle Atlantic			1,379,019	1,515,081	2,358,477	2,359,544	1,428,572	1,175,870
Virginia	795,586	345,318	1,296,633	756,522	1,925,232	1,174,172	1,809,625	888,109
North Carolina			282,662	734,625	920,840	1,405,939	436,733	1,255,836
South Carolina			287,265	341,272	506,676	774,104	320,712	572,836
Georgia			455,246	502,374	1,125,843	1,040,087	567,567	662,356
Florida	381,524	327,076	469,860	403,512	1,054,152	1,080,706	639,290	916,566
South Atlantic			2,791,666	2,738,305	5,232,752	5,474,988	3,775,927	4,295,703
Ohio			685,802	681,913	984,221	1,061,190	786,418	717,002
Indiana			181,255	199,231	425,959	634,554	390,146	417,117
Illinois			766,348	828,427	1,604,641	1,689,796	1,312,340	1,458,730
Michigan			56,223	148,311	191,337	371,472	77,975	306,197
Wisconsin	61,700	65,906	130,500	157,738	215,143	491,295	321,211	454,628
East North Central			1,820,128	2,015,620	3,421,301	4,248,307	2,888,090	3,353,674
Minnesota	20,276	36,837	28,279	55,490	34,438	156,223	157,576	237,409
Iowa	40,603	69,070	78,950	94,838	173,992	321,986	263,948	383,327
Missouri	100,990	89,076	171,544	117,375	471,196	315,438	453,277	351,247
North Dakota	1,893	1,832	1,953	4,428	3,826	11,730	8,503	13,988
South Dakota	1,763	2,356	1,951	4,567	1,310	9,772	844	8,296
Nebraska	18,998	8,863	37,961	26,572	58,998	40,720	50,068	73,762
Kansas	5,865	23,238	15,500	45,625	183,313	171,067	567,083	360,261
West North Central	190,388	231,272	336,138	348,895	927,073	1,026,936	1,499,899	1,408,290
Kentucky			106,266	333,925	215,493	502,802	150,356	374,561
Tennessee			1,050,238	636,230	1,707,915	1,252,496	781,457	589,539
Alabama			344,589	459,020	782,125	808,642	521,725	589,552
Mississippi			183,079	339,637	234,177	619,591	231,039	543,848
East South Central			1,744,172	1,768,812	3,039,710	3,243,531	1,684,577	2,097,500
Arkansas	11,924	37,801	14,153	97,512	210,836	188,289	411,659	214,688
Louisiana			416,450	229,932	803,056	426,211	232,657	468,883
Oklahoma	2,604	9,245	3,762	13,016	134,433	161,406	211,757	193,669
Texas	142,007	262,477	109,719	333,250	282,489	421,696	221,795	300,663
West South Central			544,084	673,710	1,430,814	1,195,602	1,077,868	1,177,903
Montana	656	3,686	1,764	5,980	8,473	9,483	2,046	9,872
Idaho	0	2,629	9,400	7,750	26,405	36,211	3,804	47,151
Wyoming	389	1,182	318	2,114	4,999	6,164	579	3,089
Colorado	6,227	14,369	4,439	7,353	22,652	38,386	14,981	24,471
New Mexico	220,864	2,037	444,715	2,934	1,344,859	7,384	1,813,878	7,005
Arizona	15,473	5,681	4,747	6,053	32,805	32,881	3,222	27,820
Utah	3,777	1,281	20,472	4,184	49,470	9,681	71,934	22,580
Nevada	4,343	190	3,466	377	26,011	1,325	6,606	2,011
Mountain	251,719	31,035	489,230	36,745	1,515,674	141,516	1,917,110	143,999
Washington	27,387	23,195	19,193	35,620	32,180	81,067	25,791	72,339
Oregon	4,390	18,747	8,672	34,528	13,162	71,646	13,085	92,694
California	168,253	278,103	100,380	243,894	284,673	529,458	198,204	356,429
Pacific	200,030	320,045	128,245	314,042	330,015	682,171	237,080	521,462
Total			9,412,956	9,685,860	18,576,023	18,915,295	14,048,391	14,434,607

[1] U. S. Bureau of Transport Economics and Statistics (*290, 291*). Excludes phosphate rock but according to the Interstate Commerce Commission may include small tonnages of lining materials. The reports on the basis recorded here were discontinued with 1950, but similar data may be estimated for later years from 1-percent sample reports (*292*).

TABLE 145.—*Fertilizer movement: Number of carloads, average haul, and approximate average rates per ton by railway freight, 1926, 1949, and 1952*

State to State movement	1926 [1]			1949 [2]			1952 [2]		
	Carloads	Average haul	Average rates	Carloads	Average haul	Average rates	Carloads	Average haul	Average rates
	Number	*Miles*	*Dollars*	*Number*	*Miles*	*Dollars*	*Number*	*Miles*	*Dollars*
Alabama to—									
Alabama	123	170	2.79	87	112	1.60	82	103	2.40
Florida	3	112	2.29	5	553	7.80	9	276	4.60
Georgia	2	289	3.94	13	231	3.40	15	195	4.40
Louisiana				8	429	8.00	4	443	8.80
Mississippi	18	167	2.00	21	240	4.40	17	328	5.00
Missouri				4	575	9.60	6	548	11.00
Tennessee	0	230	3.90	2	195	2.60	13	214	4.60
All others	6	328	3.86	27	940	11.51	30	674	10.86
Total	158	179	2.89	167	312	4.39	176	260	4.98
Arkansas to—									
Alabama				5	494	8.00	11	442	8.80
Arkansas	21	91	2.40	10	138	3.40	19	125	3.80
Florida				9	800	10.00	5	872	11.60
Georgia	2	826	10.46	3	559	8.60	6	593	9.80
Louisiana				25	144	3.80	14	249	7.00
Mississippi	1	230	3.99	11	238	6.20	17	230	6.40
Missouri				2	194	6.20	8	406	9.00
Tennessee				4	404	7.60	6	353	7.20
All others				4	271	7.95	11	466	10.29
Total	24	158	3.14	73	302	5.86	97	341	7.43
California to—									
California	[3] 1	218	3.60	49	203	4.00	42	252	4.60
All others	[3] 3	1,047	13.36	27	2,382	15.52	10	1,296	18.22
Total	4	840	10.92	76	977	8.00	52	453	7.22
Colorado to—									
Colorado				5	141	5.00	5	189	5.00
All others				4	899	11.20	5	626	7.44
Total				9	478	7.76	10	407	6.22
Connecticut to—									
Connecticut	11	59	2.91	1	40	1.80	4	50	2.20
Massachusetts	23	72	3.36	4	94	4.60			
All others				3	305	6.87			
Total	34	68	3.21	8	166	5.10	4	50	2.20
Delaware: Total	2	183	5.00				6	617	10.53
Florida to—									
Alabama	42	252	3.78	3	125	2.60	8	155	3.40
Florida	28	157	2.60	126	134	2.20	171	146	2.60
Georgia	3	147	2.93	5	145	3.00	5	300	6.20
All others	5	488	5.18	8	738	[4] 8.78	3	494	7.93
Total	78	229	3.41	142	168	2.61	187	156	2.82
Georgia to—									
Alabama	62	230	3.40	19	159	3.20	10	143	3.20
Florida	5	310	4.75	3	233	4.40	6	192	4.40
Georgia	110	126	2.33	87	100	2.00	116	133	2.40
South Carolina	20	162	3.33	6	125	2.60	11	117	2.00
Tennessee	20	336	4.35	6	222	4.20	9	224	4.20
All others	8	460	5.72	5	1,429	15.00	10	679	10.26
Total	243	189	3.05	126	172	2.89	162	173	3.12
Illinois to—									
Arkansas	5	288	4.20	4	252	6.00	3	486	10.20
Florida				5	1,190	10.80	8	1,151	13.20
Illinois				200	115	1.60	169	106	1.60
Indiana	6	139	3.50	22	173	4.40	3	156	5.80
Iowa				30	196	5.40	14	265	6.00
Kentucky				4	280	6.00	6	222	5.20
Michigan				26	200	4.80	18	209	5.80
Missouri				12	250	5.60	10	242	6.00
Nebraska				34	489	8.60	2	489	9.60
Tennessee	4	322	4.93				5	175	3.00
Wisconsin				12	289	5.40	12	190	5.40
All others	2	557	7.35	34	687	9.16	16	657	10.30
Total	17	275	4.40	382	234	3.94	264	206	3.62

See footnotes at end of table, p. 159.

TABLE 145.—*Fertilizer movement: Number of carloads, average haul, and approximate average rates per ton by railway freight, 1926, 1949, and 1952*—Continued

State to State movement	1926 [1]			1949 [2]			1952 [2]		
	Carloads	Average haul	Average rates	Carloads	Average haul	Average rates	Carloads	Average haul	Average rates
	Number	*Miles*	*Dollars*	*Number*	*Miles*	*Dollars*	*Number*	*Miles*	*Dollars*
Indiana to—									
Illinois				34	154	4.60	22	108	2.40
Indiana	38	116	3.22	40	78	2.40	41	81	2.20
Kentucky	2	123	4.50	11	81	2.00	7	124	3.00
Michigan				6	205	4.80	3	250	6.80
Ohio	13	159	3.71	43	374	8.00	2	134	6.00
Wisconsin				7	329	6.60	2	271	7.20
All others				10	756	9.50	14	448	8.85
Total	53	127	3.39	151	241	5.09	91	158	3.68
Iowa to—									
Illinois				5	128	3.80	5	146	3.00
Iowa				57	103	2.00	51	115	2.80
Minnesota				7	264	5.80	5	198	5.00
All others				32	818	9.66	10	305	7.20
Total				101	342	4.78	71	150	3.59
Kansas to—									
Iowa				4	418	8.40	8	374	8.40
Kansas				52	73	1.40	51	175	2.40
Mississippi				3	595	9.80	8	575	9.60
Missouri				12	278	6.60	16	161	5.80
Wisconsin				6	628	9.80	8	652	11.00
All others				17	730	9.54	32	572	10.66
Total				94	283	4.64	123	322	6.41
Kentucky to—									
Indiana	5	182	4.14	5	210	5.40	2	149	5.60
Kentucky	3	164	3.40	24	96	1.80	26	171	2.20
All others	3	257	3.20	2	709	5.80	5	125	2.52
Total	11	198	3.71	31	154	2.64	33	115	2.45
Louisiana to—									
Alabama	5	443	5.67	7	416	6.80	7	324	6.00
Arkansas	7	244	4.75	5	227	6.20	1	373	7.40
Illinois				1	888	9.60	9	762	9.80
Louisiana	31	189	3.14	29	119	3.00	23	117	3.40
Mississippi	31	183	3.11	16	220	4.60	24	233	4.40
Tennessee	7	286	4.46				1	393	7.80
Texas	34	223	3.93	11	343	7.00	3	476	9.60
All others	4	650	5.75	16	908	[3] 11.31	18	860	13.82
Total	119	232	3.72	85	355	5.96	86	408	7.05
Maine to—									
Maine	20	163	3.59	19	189	4.60	2	206	4.60
All others				5	581	[3] 10.64	1	470	7.60
Total	20	163	3.59	24	271	5.38	3	294	5.60
Maryland to—									
Delaware	13	97	3.06				3	70	4.80
Maryland	21	86	2.88	3	20	2.40	4	108	2.20
Massachusetts	8	353	7.35				2	419	9.80
New York	11	322	4.59	23	343	7.60	14	347	8.80
Ohio	8	408	6.36	5	407	7.80			
Pennsylvania	19	76	3.03	17	276	6.60	15	247	7.00
Virginia	10	229	4.61	9	150	3.80	8	161	4.40
West Virginia	12	307	7.26	12	329	7.60	5	278	8.00
All others	29	428	6.68	9	906	11.04	8	690	[3] 11.02
Total	130	260	4.92	78	359	7.15	59	309	7.36
Massachusetts to—									
Connecticut	3	154	3.67	3	125	4.60	5	107	3.60
Maine	9	309	5.61	9	333	7.60	8	413	8.60
Massachusetts	28	62	3.85	3	89	3.60	4	65	6.00
Vermont				4	223	6.20	5	171	6.40
All others				5	630	9.48	9	330	6.98
Total	40	124	3.67	24	320	6.88	31	258	6.63
Michigan to—									
Michigan				15	104	3.20	10	134	3.60
All others	4	197	4.08	10	512	8.22	7	602	10.20
Total	4	197	4.08	25	267	5.21	17	327	6.43
Minnesota to—									
Minnesota				19	130	3.20	22	175	4.20
Wisconsin				5	156	4.40	5	175	5.00
All others				1	417	7.60	9	364	7.61
Total				25	147	3.62	36	222	5.14

See footnotes at end of table, p. 159.

TABLE 145.—*Fertilizer movement: Number of carloads, average haul, and approximate average rates per ton by railway freight, 1926, 1949, and 1952*—Continued

State to State movement	1926 [1]			1949 [2]			1952 [2]		
	Carloads	Average haul	Average rates	Carloads	Average haul	Average rates	Carloads	Average haul	Average rates
	Number	*Miles*	*Dollars*	*Number*	*Miles*	*Dollars*	*Number*	*Miles*	*Dollars*
Mississippi to—									
Arkansas	7	444	6.00	2	126	3.40			
Mississippi	41	123	1.96	51	116	2.40	37	105	2.00
All others	4	152	3.12	2	104	2.10	7	458	7.71
Total	52	108	2.07	55	116	2.43	44	161	2.91
Missouri to—									
Arkansas				9	228	3.40	14	230	3.40
Illinois				24	124	1.60	23	126	1.80
Kansas				12	256	5.60	7	303	7.80
Louisiana				4	471	3.00	12	513	3.40
Missouri				44	177	4.20	53	114	2.00
All others	5	267	3.88	7	622	9.14	9	587	8.73
Total	5	267	3.88	100	221	3.97	118	218	3.01
Nebraska to—									
Nebraska				7	10	.60	8	42	2.20
All others				19	968	10.42	11	579	9.46
Total				26	710	7.78	19	353	6.40
Nevada to—									
California				5	390	5.00	3	369	7.20
Illinois				1	1,777	21.80			
Total				6	621	8.30	3	369	7.20
New Jersey to—									
Florida				8	1,082	11.40	1	1,084	13.00
Massachusetts	9	208	5.41	4	273	7.80	1	190	7.40
New Jersey	10	38	1.73	8	37	2.80			
New York	16	220	4.32	24	209	7.20	10	248	6.80
Pennsylvania	1	88	3.70	12	149	3.80	4	121	3.40
All others	7	332	6.03	12	409	7.50	9	672	11.16
Total	43	190	4.21	68	352	6.66	25	411	8.10
New Mexico to—									
Alabama				16	1,196	12.60			
Arkansas				8	889	11.20	1	900	12.60
Florida				16	1,605	14.60	18	1,562	15.60
Georgia				24	1,339	13.40	3	1,468	15.00
Illinois				22	1,199	12.00			
Kentucky				6	1,337	13.60	3	1,346	15.20
Louisiana				14	870	10.20			
Mississippi				15	989	11.60			
Missouri				9	978	10.60	1	870	11.80
New York				8	1,837	14.60	3	1,935	16.00
North Carolina				16	1,746	14.80	8	1,753	16.00
Ohio				29	1,491	13.40	2	1,457	14.60
South Carolina				13	1,599	14.20	3	1,633	15.80
Tennessee				11	1,229	13.00	3	1,359	14.60
Texas				12	675	8.00	2	683	8.40
Virginia				15	1,888	15.00			
Wisconsin				10	1,271	11.40			
All others				47	1,848	14.33	1	826	12.00
Total				291	1,411	13.00	48	1,507	15.02
New York to—									
Michigan				7	402	8.20	2	206	7.20
New Jersey				4	300	6.80	5	101	6.00
New York	18	55	2.01	8	123	4.60	7	127	5.80
Pennsylvania				7	216	5.60	8	151	6.60
All others	4	258	4.93	22	605	12.02	8	440	9.05
Total	22	92	3.06	48	413	8.86	30	237	7.01
North Carolina to—									
North Carolina	158	81	2.25	81	93	2.00	91	99	2.40
South Carolina	5	182	3.27	12	92	2.00	14	104	2.60
All others	2	97	2.52	5	520	6.80	5	319	5.56
Total	165	84	2.28	98	115	2.21	110	110	2.57

See footnotes at end of table, p. 159.

TABLE 145.—*Fertilizer movement: Number of carloads, average haul, and approximate average rates per ton by railway freight, 1926, 1949, and 1952*—Continued

State to State movement	1926 [1]			1949 [2]			1952 [2]		
	Carloads	Average haul	Average rates	Carloads	Average haul	Average rates	Carloads	Average haul	Average rates
	Number	*Miles*	*Dollars*	*Number*	*Miles*	*Dollars*	*Number*	*Miles*	*Dollars*
Ohio to—									
Alabama				32	1,021	10.80			
Florida				10	971	10.60	3	1,059	12.40
Georgia				18	610	8.60	11	617	10.40
Illinois				3	454	8.40	9	455	9.60
Indiana	11	139	3.43	17	177	4.60	14	197	5.20
Kentucky	12	268	3.34	18	165	3.60	19	120	3.20
Michigan				25	202	3.80	35	205	4.80
New York	2	294	5.00	11	312	4.60	13	318	6.40
Ohio	69	99	3.05	130	117	2.60	106	130	3.20
Pennsylvania				10	280	5.40	11	326	6.00
South Carolina				7	607	9.20	5	650	10.20
West Virginia	10	174	4.56	3	176	4.80			
All others	2	295	3.49	15	739	9.71	13	657	10.49
Total	106	137	3.31	305	345	5.11	239	250	5.69
Oklahoma to—									
Arkansas				6	166	4.00	4	70	1.40
Louisiana				5	285	2.20	5	318	2.40
Oklahoma				24	77	1.20	21	62	1.00
All others				5	852	10.08	7	531	[4] 6.97
Total				40	213	2.86	37	186	2.36
Oregon to—									
Oregon				2	227	7.60	6	256	3.00
All others				2	555	[4] 9.60	1	180	[4] 5.00
Total				4	391	8.60	7	245	3.29
Pennsylvania to—									
Georgia				5	858	10.20	3	864	11.00
Maryland	3	98	3.37	13	281	6.60	12	239	5.20
New Jersey	6	60	3.12	1	420	8.20	3	63	3.40
New York	11	227	4.83	3	201	5.80	5	314	8.20
North Carolina				5	614	8.80	2	559	9.20
Pennsylvania	6	45	2.73	22	117	4.00	10	75	3.80
Virginia				7	420	8.20	4	330	8.40
All others	6	148	3.65	16	788	10.15	31	798	12.79
Total	32	135	3.76	72	419	7.14	70	499	9.05
South Carolina to—									
Georgia	6	391	3.25	1	108	1.40	7	204	4.20
Illinois				5	972	10.40	5	937	11.60
Indiana				2	802	9.80	6	803	10.60
North Carolina	16	158	3.03	9	200	3.80	6	162	3.60
South Carolina	68	108	2.45	59	105	2.00	58	109	2.40
All others	8	408	4.24	4	502	7.20	6	460	9.67
Total	98	152	2.74	80	207	3.17	88	238	4.20
Tennessee to—									
Alabama	21	104	3.26	13	134	2.60	15	146	3.00
Arkansas	8	220	3.88	1	332	7.60			
Georgia	4	124	2.36	1	330	1.20	5	334	4.40
Kentucky	24	158	3.00	28	144	2.80	21	136	3.00
Mississippi	12	167	2.88	4	115	2.40	1	60	1.80
South Carolina				8	262	2.20	1	644	5.00
Tennessee	37	104	2.40	68	127	1.60	60	134	2.40
All others	1	372	5.84	24	426	5.44	23	502	8.36
Total	107	147	2.90	147	189	2.64	126	225	3.75
Texas to—									
Arkansas				1	197	6.00	6	523	10.80
Louisiana				2	267	6.80	10	216	6.40
Missouri				1	725	16.00	5	717	12.80
Nebraska				1	1,000	12.20	7	714	13.00
Oklahoma				6	265	6.80	5	353	9.40
Texas	19	177	3.23	22	244	4.80	12	197	4.40
All others				3	1,079	12.27	53	943	[4] 13.74
Total	19	177	3.23	36	351	6.42	98	694	11.34
Utah to—									
Idaho				2	247	6.00	3	356	6.20
All others				16	1,554	11.96	1	929	12.00
Total				18	1,409	11.36	4	499	7.65

See footnotes at end of table, p. 159.

TABLE 145.—*Fertilizer movement: Number of carloads, average haul, and approximate average rates per ton by railway freight, 1926, 1949, and 1952*—Continued

State to State movement	1926 [1]			1949 [2]			1952 [3]		
	Carloads	Average haul	Average rates	Carloads	Average haul	Average rates	Carloads	Average haul	Average rates
	Number	*Miles*	*Dollars*	*Number*	*Miles*	*Dollars*	*Number*	*Miles*	*Dollars*
Virginia to—									
Georgia	[5] 1	576	6.33	7	576	8.60	2	602	10.60
Maryland	[6] 1	186	3.25	7	186	6.20	6	220	6.20
New Jersey				5	330	7.40	4	343	9.00
North Carolina	82	161	3.20	173	200	2.80	164	191	3.20
Ohio				13	466	8.40	3	645	11.40
South Carolina	[5] 1	341	4.38	16	341	5.00	21	334	5.20
Virginia	50	135	2.68	160	172	2.60	161	179	2.40
West Virginia	15	398	7.07	10	275	4.80	5	287	7.80
All others	1	125	2.42	12	477	7.92	14	680	10.77
Total	151	180	3.44	403	221	3.17	410	218	3.44
Washington to—									
Idaho				1	761	12.00			
Oregon				4	205	5.60	5	313	5.00
Washington				5	111	4.00	1	56	1.60
Total				10	214	5.44	6	270	4.43
West Virginia to—									
Indiana				2	322	7.40	5	326	8.80
Maryland				5	383	8.00	3	411	9.60
North Carolina				6	387	7.40	5	480	9.20
Pennsylvania	6	66	3.86				2	435	9.40
West Virginia				5	178	2.60	4	86	1.60
All others	2	11	2.60	19	894	9.82	37	803	12.09
Total	8	52	3.54	37	615	7.99	56	686	10.56
Wisconsin to—									
Florida				1	1,132	10.20	6	1,248	12.20
Michigan				7	241	4.60	2	126	5.00
Minnesota				6	118	2.40	1	71	1.60
Wisconsin				41	153	2.00	65	167	2.20
All others				19	750	8.82	16	830	[4] 10.78
Total				74	325	4.14	90	355	4.45
Grand total	1,746	172	3.29	3,539	383	5.19	3,136	285	4.95

[1] Calculated from data selected by the Bureau of Railway Economics (37) to represent the actual fertilizer movement by rail in the spring of 1926, except as otherwise noted. Includes rates on mixed fertilizers, superphosphate, sodium nitrate, potassium chloride, and kainit.

[2] U. S. Bureau of Transport Economics and Statistics (292). A 1-percent sample of shipments of fertilizer, n.o.s., terminated in the calendar year indicated; excludes phosphate rock and superphosphate. Relatively small quantities of agricultural liming materials may be included, as well as a few less-than-carload shipments. The average carload of fertilizer was 17 tons in 1913, 23 in 1925, 34 in 1940, 42 in 1949, and 40.5 in 1952. Individual shipments ranged in 1952 from 5 to 67 tons, but the majority were between 20 and 50 tons. Generalizations should be made with caution from data representing only a few carloads.

[3] Supplied by the California Fertilizer Association.

[4] Rates for l.c.l. or the average rate is partially made up from l.c.l. rates.

[5] From tariffs.

TABLE 146.—*Fertilizer movement: Net domestic waterborne traffic, by type of fertilizer, 1921–52* [1]

Calendar year	Nitrates [2]	Phosphates [3]	Potash [4]	Fertilizer ingredients [5]	Mixed fertilizers [6]	Total
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1921						1,235,551
1922						1,859,192
1923						2,044,472
1924						1,917,234
1925						1,844,611
1926	99,158	1,268,795	18,984	24,000	1,686,174	3,097,111
1927	191,391	561,636	148,680	205,526	444,847	1,552,089
1928	136,510	1,509,954	57,885	415,833	876,751	2,996,933
1929	142,767	1,582,348	34,008	1,019,990	822,289	3,601,402
1930	186,127	1,449,564	87,921	457,043	889,810	3,070,465
1931	143,001	818,608	70,278	1,108,375	666,525	2,806,787
1932	119,431	1,266,335	57,953	638,866	632,464	2,715,049
1933	170,943	1,323,016	98,230	686,023	862,298	3,140,516
1934	210,136	1,300,771	65,383	600,249	825,781	3,002,360
1935	288,243	1,439,080	84,938	563,851	1,355,753	3,731,865
1936	205,498	1,402,475	135,276	709,900	922,522	3,375,671
1937	222,989	1,915,558	175,295	889,661	679,361	3,882,864
1938	160,606	1,404,116	152,005	620,568	809,831	3,147,126
1939	478,900	1,308,376	295,305	943,428	633,220	3,659,239
1940	358,823	1,523,777	242,534	970,192	551,193	3,646,519
1941	237,534	1,220,354	136,722	1,130,117	650,017	3,374,744
1942	168,112	471,070	22,551	549,498	449,698	1,660,929
1943	109,897	49,791	21,748	836,866	341,457	1,359,759
1944	104,194	98,808	32,137	627,905	260,582	1,123,626
1945	135,303	628,672	32,528	1,325,023	163,169	2,284,695
1946	109,164	1,103,200	24,466	1,805,460	97,195	3,139,485
1947 [7]	93,320	1,567,463	44,504		762,200	2,467,487
1948 [7]	100,763	1,687,587	38,626		769,216	2,596,192
1949	62,119	1,731,229	69,313		510,278	2,363,939
1950	214,352	2,288,810	75,504		546,344	3,125,010
1951	299,138	2,252,318	33,043		456,988	3,041,487
1952	260,485	2,330,350	60,983		285,616	2,937,434

[1] Office of the Chief of Engineers (*911*). Reports for 1921–25 gave only the total tonnage for all fertilizers. Includes shipments from the mainland to the Territories, interisland, coastwise, lakewise, internal, canal, local, and intraport traffic, adjusted for duplication.

[2] 1926–48, nitrates, may include materials other than fertilizers; 1949–52, nitrogenous fertilizers and fertilizer materials.

[3] 1926–48, phosphates, may include materials other than fertilizers; 1949–52, phosphate fertilizer materials.

[4] 1926–48, potash, may include materials other than fertilizers; 1949–52, potash fertilizer materials.

[5] Materials not included in preceding 3 columns.

[6] 1926–48, complete (mixed) fertilizers including all types of mixed fertilizers but excluding ammonium phosphates; 1949–52, fertilizers and fertilizer materials, n.e.c., including ammonium phosphates and small tonnages of agricultural lime, greensand, peat, and similar materials.

[7] Only phosphate rock and fertilizers, n.o.s., were summarized. Tonnages of nitrates and potash were computed from the detailed port and river tables, which also show that some normal and concentrated superphosphates were included with the phosphate rock.

TABLE 147. - *Fertilizer movement: Waterborne shipments - imports, exports, and domestic - by type of fertilizer and by division of traffic,[1] every fifth calendar year 1930–60* [2]

Type of fertilizer and division of traffic	1930			1935			1940			1945			1950 [4]		
	Imports	Exports	Domestic	Imports	Exports	Domestic	Imports	Exports	Domestic	Imports	Exports	Domestic	Imports	Exports	Domestic
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Nitrates:															
Atlantic coast	369,075	9,064	128,891	338,401	70,728	208,538	493,553	222,073	375,624	334,805	38,301	188,230	443,320	290,548	253,331
Gulf coast	273,251	6,035	25,902	179,303	1,300	37,319	230,700	4,625	244,395	333,088	4,423	8,690	206,181	313,138	63,975
Pacific coast	72,592		80,105	20,998		63,072	35,004	6,552	60,177	131,919	1,340	27,982	123,235	55,741	9,605
Great Lakes						7,451		55	2,209			10,108	61		
Mississippi River			2,800	17,275	1,300	3,421	15,350	4,625	38,731	36,023	3,398	19,160	19,516	89,747	67,012
Other [3]	11,931		32,076			44,782	67,363		144,426	76,761	1,322	118,688			91,209
Adjusted totals [5]	726,849	15,099	186,127	555,977	72,028	288,213	760,227	233,305	358,823	790,872	44,070	135,303	792,185	749,174	214,352
Phosphates:															
Atlantic coast	80,837	239,637	1,145,127	17,251	183,030	1,090,068	3,820	69,715	1,365,153	219,102	22,125	491,650	45,896	182,959	1,648,810
Gulf coast	5,121	1,222,936	1,309,491	2,801	1,132,777	1,116,227	3,409	767,929	1,360,320	11,031	258,544	577,001	26,492	1,423,700	2,217,314
Pacific coast	18,910	1,059	11,169	10,949		4,590	3,537	5,198	13,752			11,735	11,108	1,222	4,280
Great Lakes	1,503	11,211	25,196	9,231		170,731		38,440	272,634				15	4,129	
Mississippi River				571	32	50,589	61	5,727	65,721		5,982		16,552	379	443,147
Other [3]			197,900		6,087	182,782		2	375,670		1,291	73,217			611,011
Adjusted totals [5]	66,809	1,474,843	1,449,561	40,322	1,322,791	1,439,080	10,846	881,281	1,523,777	230,133	279,510	628,672	100,063	1,612,380	2,288,810
Potash materials:															
Atlantic coast	447,388	21	56,130	172,005	5,803	88,210	188,985	69,600	201,659	8,465	12,275	31,788	338,527	3,750	66,428
Gulf coast	88,762		911	18,687	19,150	61,150	32,138	30,787	185,025	288	12,296	28,884	31,093	24,858	40,859
Pacific coast	17,198	62	16,179	3,503		1,166	3,816	13,317	62,906		936	4,379		4,196	7,565
Great Lakes	4,280		512	5,534		857		29	40		8,330				3,398
Mississippi River			877			4,426	1,072	1,760	2,170				1,135	5,051	4,766
Other [3]			80,782	28,076		1,870	21,481	1,120	59,023						22,708
Adjusted totals [5]	557,814	86	87,921	241,148	23,348	81,978	230,351	95,733	242,334	8,753	25,507	32,528	370,755	37,855	75,504
Fertilizer materials, n.o.s.: [6]															
Atlantic coast	356,533	89,476	176,581	150,297	19,904	119,351	129,178	29,731	692,297	19,300	37,138	1,093,737			
Gulf coast	107,061	419	2,208	88,092	27	76,866	9,733	25	110,715	39,555	49,391	9,460			
Pacific coast	2,738		1,179	7,392		11,718	19,748	263	4,150	961	938	127,348			
Great Lakes				768		507	218			276	482	525,503			
Mississippi River			201,312	3,030		106,169	6,871		5,632	39,469	5,033	31,934			
Other [3]			50,378	786		101,974	5,408	47,998	858,425	300	2,571	510,176			
Adjusted totals [5]	466,155	89,025	457,013	248,185	20,007	503,871	150,175	78,017	970,102	60,158	90,005	1,325,023			
Mixed fertilizers: [7]															
Atlantic coast	60,959	98,430	589,110	146,975	26,103	509,871	4,053	120,382	755,033	34	140,030	184,190	44,335	136,440	90,600
Gulf coast	17,812	1,607	12,405	2,859	500	39,356	1,185	2,554	60,782	5,028	4,712		20,297	63,625	14,246
Pacific coast	92,081	6,137	170,358	51,073	13,331	127,157	12,702	2,191	93,648			9,335	7,938	2,642	102,207
Great Lakes			2,168			9,704	6,487	3,288	7,441		41	29,738	317		65,512
Mississippi River			22,052			4,515			19,632	5,028	3,429	5,532	3,576	589	30,692
Other [3]			616,326	1,023	151,122	1,363,576			850,792		3,403	145,706			827,446
Adjusted totals [5]	195,436	109,712	889,810	200,907	191,235	1,355,733	24,527	128,715	551,193	5,062	152,780	103,169	72,887	202,707	546,344

[1] Atlantic coast includes Puerto Rico and receipts from the mainland to the Island are included under domestic traffic; Pacific coast includes Alaska and Hawaii; Mississippi River includes all its tributaries.

[2] U. S. Office of the Chief of Engineers (*SID*). Imports to and exports from some ports are recorded also as river traffic. Domestic traffic is recorded both at the point of shipment and the point of receipt and sometimes also in transit. Division movements are gross traffic and adjusted totals are net traffic.

[3] A new system of reporting and a new breakdown of materials was adopted in 1947; the data for 1950, except the totals, were computed from the individual port, river, and canal data in order to make them comparable with those for earlier years.

[4] Includes all other river, inland-waterway, canal, and some local traffic.

[5] All known duplication has been removed.

[6] In the original report for 1950 this category is combined with mixed fertilizers as "Fertilizers and fertilizer materials, n.o.e."

[7] In the original reports before 1947 this category was termed "Complete (mixed) fertilizers," but included all types of mixed fertilizers. For 1950 it was "Fertilizers and fertilizer materials, n.o.e."

TABLE 148.—*Iron-blast-furnace slag: Sales for use as agricultural liming material, and average value per ton, by type of slag, 1930–53* [1]

Calendar year	Sales			Average value per ton [2]	
	Screened air-cooled slag	Granulated slag	Total	Screened air-cooled slag	Granulated slag
	Tons	*Tons*	*Tons*	*Dollars*	*Dollars*
1930			10,000		
1931			11,000		
1932			12,083		
1933			13,125		
1934			13,500		
1935			22,975		
1936			27,503		
1937			38,937		
1938	6,002	28,554	34,556	0.56	0.81
1939		30,053	30,053		.94
1940	32,242	30,030	62,272	.93	.89
1941	33,598	20,042	53,010	.90	.89
1942	17,001	17,890	35,791	1.00	.79
1943	39,099	28,919	68,018	.99	.78
1944	74,773	27,704	102,477	1.02	.77
1945	38,087	27,117	65,184	1.05	.88
1946	40,979	22,943	69,922	1.12	.73
1947	50,939	26,302	77,241	1.20	.96
1948	43,700	28,800	72,500	1.29	1.07
1949	41,444	35,923	77,367	1.41	1.17
1950	38,331	44,966	83,297	1.38	1.08
1951	18,274	47,786	66,060	1.37	1.29
1952	13,572	72,245	85,817	1.46	1.34
1953	6,643	89,355	95,998	1.62	1.39

FOOTNOTES FOR TABLE 148:

[1] Continental United States. 1930–37, unpublished data from the National Slag Association; 1938–53, U. S. Bureau of Mines (*271*).

[2] At producing plant.

TABLE 149.—*Agricultural liming materials: Consumption, by kind of material, 1910, 1915, 1920, 1925, and 1930–53* [1]

Calendar year	Limestone [2]	Burned lime [3]	Hydrated lime [4]	Marl [5]	Oystershells and clamshells [6] [4]	Fresh-water mussel shells [7] [5]	Iron-blast furnace slag [8]	Total [9]
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*1,000 tons*
1910	[10] 174,290	265,057	320,819					946
1915	810,309	92,146	581,114					1,706
1920	1,864,260	241,376	148,981	97,487				2,653
1925	2,754,480	132,011	166,965	68,670				3,359
1930	2,962,641	77,900	274,075	81,186	58,788	1,513		3,588
1931	2,004,025	49,134	261,080	104,152	41,391	9,358		2,011
1932	1,381,258	46,537	196,568	147,639	41,655	1,185		1,811
1933	1,180,043	54,560	179,431	154,517	38,619	3,083		1,548
1934	1,762,990	45,402	173,086	297,236	45,350	1,938		2,748
1935	2,371,927	90,974	204,616	421,314	44,145	1,797		3,505
1936	5,567,432	115,532	221,481	248,155	68,222	1,956		6,586
1937	5,772,588	127,188	267,909	293,360	75,952	1,014		7,199
1938	6,029,847	138,680	237,647	415,957	62,736	1,096		7,859
1939	7,132,823	149,382	192,526	308,530	78,675	1,892		9,066
1940	12,203,946	185,535	221,490	482,869	91,006	1,117		14,406
1941	14,321,490	189,495	226,121	660,199	116,950	2,129	53,610	15,916
1942	18,302,354	174,090	204,773	723,864	108,095	1,935	35,791	19,838
1943	16,515,352	180,694	261,957	372,003	91,962	1,399	68,018	19,935
1944	22,883,566	181,355	266,877	431,556	109,989	1,343	102,477	24,568
1945	20,836,101	130,047	272,286	443,834	125,817		65,184	23,055
1946	27,832,547	156,805	265,780	552,098	45,590	613	69,922	29,462
1947	28,374,266	137,936	249,972	794,454	46,447		77,241	30,283
1948	23,703,903	124,551	174,034	515,785	48,505	1,368	72,500	25,086
1949	25,164,036	120,705	198,259	520,303	38,366	4,155	77,367	27,902
1950	25,266,600	121,500	213,500	469,600	55,075	3,132	83,297	29,842
1951	25,089,300	138,000	201,700	488,000	75,528	2,289	66,060	27,583
1952	24,948,600	130,000	201,400	540,600	72,917	2,444	85,817	27,252
1953	19,921,700	109,000	170,900	456,500	85,371	1,965	95,998	20,600

[1] Continental United States. Does not include material used in manufacturing fertilizers. The quantities of dolomite used in the manufacture of mixed fertilizers are given in table 92.

[2] 1910–25, U. S. Bureau of Mines (*271*) and U. S. Geological Survey (*307*); 1930–53, National Lime Association (*176*). Includes all ground and pulverized forms of limestone used for direct application to the soil.

[3] U. S. Bureau of Fisheries (*269*) and U. S. Fish and Wildlife Service (*305*).

[4] Production of unburned shell lime; 1948–52 data also include a small amount of burned lime.

[5] Production; 1949–53 data include lime, poultry grit, and cut and polished shells.

[6] U. S. Bureau of Mines (*271*).

[7] National Agricultural Limestone Institute (*166, 167*). Reported in terms of limestone equivalent. In addition to the materials itemized in preceding columns, the total includes waste industrial lime, zinc- and lead-mine chats, eggshells, carbide residue, and miscellaneous materials.

[8] 1911.

TABLE 150.—*Agricultural liming materials: Consumption of certain materials, by regions and States, calendar years 1930, 1940, and 1950* [1]

State [2] and region	Limestone [3]			Burned lime			Hydrated lime			Marl [4]			Total [5]		
	1930	1940	1950	1930	1940	1950	1930	1940	1950	1930	1940	1950	1930	1940	1950
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	1,500	48,000	56,000				5,704	4,000	5,000				7,204	52,000	61,000
New Hampshire	5,000	25,575	37,900				500	150	100		30		5,500	25,755	38,000
Vermont	6,028	45,342	103,400	1,110	2,180		130	3,475	1,300			100	7,268	50,997	104,800
Massachusetts	30,315	47,300	61,000		1,400		18,034	4,850	3,600				48,349	53,550	64,600
Rhode Island	381	7,117	14,500				825	852	500				1,206	7,969	15,000
Connecticut	25,000	46,544	74,000				2,500	3,500	2,000				27,500	50,044	76,000
New England	68,224	219,878	346,500	1,110	3,580		27,753	16,827	12,500		30	100	97,087	240,315	359,400
New York	162,810	520,296	682,000	3,450	177		25,390	14,615	18,000		2,817		191,650	537,905	700,000
New Jersey	12,250	52,235	109,000	1,890	1,738	4,000	43,652	40,225	37,000				57,822	94,198	150,000
Pennsylvania	116,202	426,263	1,095,000	27,395	84,181	28,000	87,783	59,998	71,000	1,935	510	1,000	233,315	570,952	1,195,000
Delaware	609	5,736	39,000	3,808	5,380	0,200	12,095	9,103	4,800	50			16,562	20,219	50,000
Maryland	2,640	37,919	185,500	10,222	41,022	41,700	22,348	30,311	22,000	734	2,417	38,000	35,944	111,669	287,200
West Virginia	6,500	344,000	216,000	375	15,000	9,000	1,400	1,770	3,000	1,748	2,600	32,000	10,023	363,370	260,000
Middle Atlantic	301,041	1,386,449	2,326,500	47,140	147,498	85,900	192,668	156,022	155,800	4,467	8,344	71,000	545,316	1,698,313	2,642,200
Virginia	80,750	503,203	714,000	23,750	12,469	17,000	9,500	28,876	7,000		5,000	60,000	114,000	549,548	798,000
North Carolina	98,800	286,820	734,400	1,000	1,378	700	200	1,267	2,900				100,000	289,465	738,000
South Carolina	12,000	147,731	195,000										12,000	147,731	195,000
Georgia	5,000	114,496	326,000	35	1,600	1,600	50						5,085	116,096	327,600
Florida	1,500	70,281	220,000	500			1,500	174	300				3,500	79,455	220,300
South Atlantic	198,050	1,131,531	2,189,400	25,285	15,447	19,300	11,250	30,317	10,200		5,000	60,000	234,585	1,182,295	2,278,900
Ohio	192,341	753,293	1,739,000			1,500	25,030	7,884	20,500				217,371	761,177	1,761,000
Indiana	151,933	979,015	2,295,000				2,204	4,858		10,640	42,198	105,000	164,777	1,026,071	2,400,000
Illinois	750,000	2,365,663	4,225,000										750,000	2,365,663	4,225,000
Michigan	91,059	55,802	343,000				0,895	3,139		25,000	230,750	222,000	125,984	289,691	565,000
Wisconsin		666,450	1,812,000						6,500		42,436			708,886	1,818,500
East North Central	1,185,363	4,820,223	10,414,000			1,500	37,129	15,881	27,000	35,640	315,384	327,000	1,258,132	5,151,488	10,769,500
Minnesota	14,850	47,600	440,000						500	1,000	500	1,500	15,850	48,100	442,000
Iowa	300,000	993,756	2,825,000								200		300,000	993,956	2,825,000
Missouri	228,404	1,382,974	3,440,000										228,404	1,382,974	3,440,000
Kansas	39,025	46,059	726,000										39,025	46,059	726,000
Nebraska			26,000												26,000
West North Central	582,279	2,470,389	7,457,000						500	1,000	700	1,500	583,279	2,471,089	7,459,000
Kentucky	260,000	1,284,414	925,000	4,000	8,610					30,000	151,811	10,000	294,000	1,444,835	935,000
Tennessee	332,500	764,000	639,000		10,000	7,000			5,500		1,000		332,500	775,000	651,500
Alabama	10,615	64,008	144,000	65			20						10,700	64,008	144,000
Mississippi	8,000	8,176	105,000				2,000						10,000	8,176	105,000
East South Central	611,115	2,120,598	1,813,000	4,065	18,610	7,000	2,020		5,500	30,000	152,811	10,000	647,200	2,292,019	1,835,500
Louisiana		5,981	63,000											5,981	63,000
Arkansas	5,000	12,561	117,000										5,000	12,561	117,000
Oklahoma			353,000												353,000
Texas			70,000												70,000
West South Central	5,000	18,542	603,000										5,000	18,542	603,000
Wyoming			4,000												4,000
Washington	7,000	9,925	25,000	300	400		1,000	1,100			600		8,300	12,025	25,000
Oregon	2,000	25,000	80,000						200				2,000	25,000	80,200
California	2,569	1,411	7,900			4,800	2,255	1,352	1,800	10,079			14,903	2,763	14,500
Pacific	11,569	36,336	112,900	300	400	4,800	3,255	2,452	2,000	10,079	600		25,203	39,788	179,700
Total	2,962,641	12,203,946	25,266,600	77,900	185,535	121,500	274,075	221,499	213,500	81,185	482,869	469,000	3,395,802	13,093,849	26,071,200

[1] National Lime Association (*176*). Data are available from the same source for each year 1929 to date.

[2] States not listed use little or no liming material.

[3] Ground limestone and limestone screenings. 1930 data are quantities used for direct application to the land. 1940 and 1950 data include dolomite used in making mixed fertilizers and the limestone distributed by Government agencies.

[4] Includes farm-dug marl.

[5] Total for tabulated materials only.

TABLE 151.—*Agricultural liming materials: Standard ground limestone equivalent applied under the agricultural conservation programs, by regions and States and Territories, program years 1946–53* [1]

State and region or Territory	1946	1947	1948	1949	1950	1951	1952	1953
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Maine	93,024	95,888	52,337	75,738	53,892	56,609	45,431	49,835
New Hampshire	47,151	41,360	27,217	32,812	37,140	30,722	29,067	22,753
Vermont	85,254	73,336	64,836	91,461	90,289	79,187	66,148	63,032
Massachusetts	78,950	77,559	48,951	49,209	59,927	57,270	45,251	47,438
Rhode Island	8,690	7,425	5,539	7,070	9,091	9,683	6,794	6,013
Connecticut	84,425	71,847	43,800	57,687	65,694	49,821	49,851	37,983
New England	397,494	368,415	242,680	314,067	316,013	283,292	242,542	227,054
New York	901,086	788,761	526,615	661,338	669,495	791,078	777,880	537,653
New Jersey	206,607	209,888	153,006	152,827	146,823	124,927	97,991	63,183
Pennsylvania	1,257,489	1,173,790	925,852	1,176,226	1,038,494	1,101,074	1,084,413	836,064
Delaware	84,124	73,254	57,222	44,026	55,096	60,191	47,881	43,581
Maryland	399,734	341,037	238,976	219,641	265,417	256,429	217,878	195,822
West Virginia	529,171	412,698	201,236	272,662	239,753	228,768	191,038	129,210
Middle Atlantic	3,378,211	2,999,428	2,102,907	2,526,720	2,415,078	2,562,467	2,397,081	1,805,513
Virginia	949,740	892,060	624,427	740,874	726,079	804,194	705,555	533,473
North Carolina	586,360	497,180	308,804	360,222	361,177	381,580	321,482	288,578
South Carolina	107,893	146,170	116,019	131,475	109,057	94,182	97,135	142,287
Georgia	249,903	296,761	167,065	258,564	244,238	301,319	232,202	155,112
Florida	85,559	87,726	75,110	144,867	205,335	262,253	316,412	172,164
South Atlantic	1,979,515	1,919,906	1,291,425	1,634,002	1,645,886	1,843,528	1,672,786	1,291,614
Ohio	1,931,263	1,979,201	1,778,846	1,903,925	1,622,378	1,888,184	2,060,032	1,499,867
Indiana	2,548,061	2,668,935	1,827,377	2,131,324	2,067,441	2,249,720	2,423,038	1,635,698
Illinois	4,774,935	4,761,340	4,281,122	3,906,387	3,268,439	2,401,416	2,013,640	1,509,980
Michigan	970,402	904,828	708,067	688,358	525,335	525,115	535,920	480,161
Wisconsin	2,242,448	2,156,440	1,788,564	1,833,473	1,738,167	1,380,038	1,557,954	1,195,826
East North Central	12,467,109	12,470,744	10,383,976	10,463,467	9,221,760	8,444,473	8,590,584	6,321,532
Minnesota	321,424	347,246	294,228	369,573	421,029	355,891	408,117	480,858
Iowa	3,100,420	3,311,591	2,687,051	3,080,171	2,817,525	2,097,957	2,224,674	1,220,606
Missouri	2,837,127	3,390,825	2,389,384	2,780,644	3,444,573	2,299,931	2,628,846	1,845,826
Nebraska	0	0	0	4,466	23,572	48,855	106,050	141,172
Kansas	916,563	1,057,007	594,702	704,199	492,670	657,461	559,418	380,139
West North Central	7,265,534	8,016,669	5,965,425	6,939,053	7,199,378	5,460,095	5,927,105	4,068,601
Kentucky	956,390	1,236,605	930,432	927,302	822,750	876,757	909,407	573,504
Tennessee	388,438	951,064	523,341	654,719	600,195	583,049	515,122	333,035
Alabama	96,401	294,493	165,170	161,323	145,466	164,518	127,747	40,722
Mississippi	254,975	161,412	80,469	117,513	288,431	342,240	292,928	73,975
East South Central	2,196,204	2,643,575	1,699,412	1,860,857	1,856,842	1,966,564	1,845,204	1,021,296
Arkansas	149,759	156,828	75,842	80,101	106,863	259,155	228,549	117,731
Louisiana	96,337	85,334	75,487	68,272	90,051	118,173	103,288	52,987
Oklahoma	431,387	379,895	317,575	371,683	285,802	303,575	230,738	116,310
Texas	102,138	51,285	58,382	65,978	65,704	101,096	90,424	35,615
West South Central	779,621	673,342	527,286	586,034	548,420	781,999	652,999	322,643
Montana	122	49	100	73	52	41	45	0
Idaho	0	0	0	0	5	0	0	0
Wyoming	12,322	0	0	3,072	3,695	0	0	0
Mountain	12,444	49	100	3,145	3,752	41	45	0
Washington	28,638	32,965	17,523	24,019	22,199	24,256	31,752	21,372
Oregon	42,492	62,116	41,438	53,114	49,106	61,464	67,561	43,827
California	28,946	92,814	3,284	17,646	7,625	7,509	2,507	7,049
Pacific	100,076	187,895	62,245	95,679	78,930	93,229	101,820	72,248
Continental United States	28,576,208	29,280,023	22,275,456	24,423,024	23,286,059	21,435,648	21,430,166	15,130,501
Hawaii	222	290	618	429	381	317	418	627
Puerto Rico	3,759	5,364	8,468	10,504	17,270	16,065	6,463	5,323
Territories	3,981	5,654	9,086	10,933	17,651	16,382	6,881	5,950
Total	28,580,189	29,285,677	22,284,542	24,433,957	23,303,710	21,452,070	21,437,047	15,136,451

[1] U. S. Production and Marketing Administration (*312*) and Agricultural Conservation Program Service (*260a*). Liming materials have been converted to standard ground limestone equivalent on the basis of the specifications of each State (*337*).

TABLE 152.—*Agricultural liming materials: Rate of consumption per acre of cropland, in terms of calcium oxide (CaO) equivalent, by regions and States, calendar years 1930–52* [1]

State [2] and region	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*
Maine	6.6	7.1	4.1	5.1	7.3	5.1	17.6	27.7	30.9	31.3	42.2	54.9	53.0	51.2	79.2	72.9	72.5	73.6	40.7	57.8	44.5	52.6	47.6
New Hampshire	10.5	13.1	9.8	3.5	5.4	4.8	12.3	37.1	26.4	48.5	61.9	116.1	66.0	58.5	89.4	79.6	123.0	88.5	47.5	66.2	82.5	100.5	87.3
Vermont	7.0	4.5	3.6	5.1	2.4	5.9	14.7	33.2	24.2	31.7	50.1	109.1	87.4	64.8	97.3	99.9	73.5	62.1	50.5	72.3	88.8	90.2	75.0
Massachusetts	93.0	138.3	95.8	86.1	50.5	44.9	59.0	67.5	88.2	95.7	101.2	82.2	109.0	69.3	114.9	136.3	123.7	130.1	76.2	81.1	105.7	133.6	118.8
Rhode Island	21.1	55.1	24.4	20.5	45.4	30.2	41.5	74.8	87.7	96.3	134.0	164.6	153.2	107.1	158.0	189.6	162.9	133.1	138.0	148.2	214.1	240.0	186.9
Connecticut	58.4	53.0	85.8	25.1	46.2	45.4	29.4	74.5	68.3	106.2	120.8	144.8	140.0	106.5	158.8	180.4	247.8	192.9	131.3	154.2	167.7	154.5	163.7
New England	25.6	31.2	25.6	18.7	16.8	16.7	27.9	42.8	42.8	53.4	65.5	90.2	84.0	65.6	100.8	94.4	106.3	94.3	61.0	78.3	91.1	93.6	84.3
New York	22.5	21.7	14.8	14.3	13.2	16.2	28.7	39.7	40.8	57.7	72.9	93.8	78.5	70.8	106.3	113.9	120.0	108.1	62.3	68.1	92.3	121.8	123.5
New Jersey	68.4	69.6	45.6	43.6	51.3	62.0	75.0	94.3	106.2	104.8	119.8	129.5	134.2	182.9	229.5	210.5	212.7	224.7	187.4	182.9	194.4	197.3	185.8
Pennsylvania	35.2	32.8	28.8	23.8	25.2	39.9	46.5	67.1	66.0	71.2	92.5	109.9	107.0	164.0	173.7	159.8	203.3	178.8	149.9	159.6	169.3	189.9	183.9
Delaware	40.4	30.5	16.5	13.4	27.6	24.7	35.0	46.9	52.6	56.7	61.3	50.9	50.0	71.6	89.9	85.3	100.4	78.6	54.7	78.7	129.0	158.4	161.2
Maryland	23.2	26.6	19.3	22.6	17.6	31.1	57.6	75.2	66.4	63.8	84.1	83.3	90.2	124.0	145.8	138.5	171.8	169.6	114.3	126.6	151.0	186.2	196.2
West Virginia	5.6	5.7	1.5	3.3	9.7	10.2	18.6	23.6	137.9	168.1	174.8	163.4	137.0	211.7	294.9	173.4	271.3	214.7	119.5	145.4	157.5	148.1	141.0
Middle Atlantic	28.5	27.2	20.6	19.0	10.8	28.1	30.6	54.8	62.7	75.3	92.4	105.6	96.1	128.2	157.5	140.4	172.1	153.9	110.2	119.7	150.6	161.1	149.0
Virginia	24.5	14.0	10.5	15.3	17.2	22.9	41.2	59.5	66.1	79.7	122.1	151.3	154.3	192.4	243.8	151.9	155.3	130.7	87.0	129.8	175.5	203.6	201.2
North Carolina	14.7	5.0	6.5	5.6	8.6	10.5	12.5	18.8	19.3	28.9	43.0	49.0	57.0	78.5	71.4	51.9	68.8	61.8	46.0	84.1	105.9	77.4	63.0
South Carolina	2.4	1.7	1.5	3.2	5.6	8.0	9.1	10.8	11.9	24.5	30.0	34.6	41.3	47.2	99.8	28.2	34.5	39.3	36.0	42.3	39.4	30.5	26.0
Georgia	.5	.6	.6	.7	.5	1.3	1.5	2.3	1.3	1.8	11.5	15.2	12.0	17.6	20.1	17.2	29.3	35.0	32.9	35.7	33.7	47.3	36.0
Florida	2.2	3.0	4.9	6.0	9.2	16.5	18.0	24.7	19.4	32.3	36.0	43.2	49.0	54.8	71.4	56.1	60.2	42.4	34.2	51.5	96.6	131.0	175.4
South Atlantic	8.9	4.4	4.3	5.3	7.0	9.3	13.2	18.7	19.4	27.2	42.2	51.1	54.0	68.8	86.4	53.3	62.6	58.3	45.5	65.5	83.5	83.0	78.2
Ohio	20.8	15.7	9.7	11.3	12.7	14.0	22.5	28.4	26.0	35.3	66.9	92.9	115.4	124.5	147.4	124.4	187.7	181.7	184.2	189.5	158.9	188.7	233.6
Indiana	13.8	9.8	9.3	7.8	11.5	18.9	38.6	40.3	42.3	31.9	80.5	76.1	97.5	101.0	90.4	150.9	229.1	252.9	174.2	215.3	202.0	212.7	207.6
Illinois	24.6	10.7	4.0	6.1	11.0	11.8	33.0	41.5	46.1	58.5	98.4	113.5	157.0	129.3	175.2	207.9	249.8	241.8	253.1	229.2	197.1	178.0	145.2
Michigan	11.7	12.8	12.6	11.6	21.0	12.8	13.9	17.5	21.8	12.5	24.6	61.5	121.0	50.8	66.7	65.9	87.6	67.5	56.8	56.3	55.0	126.4	148.7
Wisconsin	------	12.1	11.4	7.9	34.1	65.0	64.0	50.3	43.0	31.3	64.3	72.2	61.0	92.7	161.0	172.9	187.3	185.1	179.3	186.5	167.9	170.9	169.8
East North Central	20.9	11.6	8.6	8.4	16.6	22.2	34.7	36.9	37.7	38.6	73.9	88.6	118.7	105.7	136.8	147.4	201.1	198.4	185.9	187.5	167.5	199.1	165.2
Minnesota	.3	.5	.3	.2	.4	.6	1.8	1.4	1.1	1.3	2.5	4.2	12.0	10.9	11.8	16.1	14.2	12.8	11.4	17.5	21.1	18.8	21.0
Iowa	11.8	9.0	5.7	5.0	7.4	10.5	42.5	17.1	9.5	15.8	39.4	40.4	48.0	53.6	78.9	117.9	149.5	147.2	129.1	138.8	126.5	132.1	141.9
Missouri	14.9	11.2	6.9	3.8	5.2	8.3	27.8	22.2	25.3	25.4	84.4	95.0	103.4	91.5	109.3	92.4	193.4	225.4	183.9	183.0	246.6	367.8	373.8
Kansas	1.6	1.4	.7	.5	1.2	.3	.9	1.2	.9	.5	1.4	2.1	3.3	4.3	16.2	21.9	33.4	53.0	32.6	37.3	26.4	29.1	30.1
Nebraska	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	1.2	2.2	4.8
West North Central	3.6	2.9	1.7	1.3	1.9	2.5	9.3	5.1	4.2	5.0	14.4	15.8	19.0	18.8	26.6	31.5	48.5	54.5	44.1	47.1	48.6	32.5	48.4
Kentucky	42.1	32.5	24.7	24.6	23.7	40.7	123.9	99.6	111.3	115.7	184.3	207.6	186.5	160.9	146.9	137.2	142.9	221.9	141.2	138.8	146.5	156.0	158.2
Tennessee	43.8	29.3	20.3	5.7	3.5	3.5	8.5	45.0	67.8	82.3	103.1	132.0	68.0	74.8	142.7	191.5	184.3	176.6	64.4	78.2	97.0	90.8	89.3
Alabama	1.4	.5	.6	.8	1.8	2.2	2.3	5.3	4.6	4.6	7.6	6.7	8.8	20.4	28.8	16.2	12.9	46.7	10.8	24.7	21.1	28.8	21.7
Mississippi	1.6	.8	.3	.2	.4	.5	.5	.9	.5	.3	.9	1.6	3.4	8.8	84.5	33.5	30.7	19.4	14.4	15.1	34.6	43.4	36.2
East South Central	21.2	15.2	11.1	7.4	6.9	10.8	30.8	35.4	43.5	48.1	67.7	79.9	60.3	61.1	97.4	97.5	89.5	111.3	57.3	61.2	72.9	77.3	73.7
Louisiana	------	------	.07	------	------	------	1.4	1.5	.5	.8	1.2	2.0	4.1	3.9	47.6	10.9	24.4	20.2	18.4	17.5	22.4	30.6	27.3
Arkansas	------	------	.04	------	------	------	------	------	.4	.5	1.4	3.7	5.0	6.8	10.4	7.2	13.3	12.0	7.4	7.7	16.4	36.9	32.7
Oklahoma	------	------	------	------	------	------	------	------	------	------	------	------	.4	1.2	17.4	13.8	27.7	23.1	20.3	23.0	23.2	26.6	18.3
Texas	------	------	------	------	------	------	------	------	------	------	------	------	.06	.1	.28	1.9	3.5	1.8	2.7	2.3	2.3	3.3	3.3
West South Central	------	------	.01	------	------	------	.10	.11	.08	.12	.27	.63	1.0	1.5	9.6	6.9	12.7	10.1	9.2	9.6	11.3	15.2	12.4
Wyoming	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	1.9	1.4	1.4
Washington	1.3	1.3	1.3	1.3	1.1	1.2	1.0	1.4	1.5	1.9	2.1	2.0	2.0	2.9	3.5	4.9	7.4	7.2	2.7	3.0	3.7	3.6	5.0
Oregon	.5	.6	.6	.6	1.1	1.2	2.4	2.9	6.1	6.2	6.8	5.7	7.0	4.3	7.4	5.7	7.1	20.6	23.0	21.8	18.6	19.1	16.5
California	2.3	1.8	1.0	1.6	2.6	1.9	2.8	1.8	1.3	1.1	1.1	1.5	2.1	3.3	5.1	6.9	7.2	4.7	3.6	3.3	2.0	2.5	2.9
Pacific	1.5	1.4	1.0	1.3	1.8	1.5	2.2	1.9	2.4	2.5	2.6	2.6	3.0	3.4	5.1	5.6	7.7	9.0	7.5	7.2	5.7	6.3	6.4
Continental United States	8.0	6.1	4.4	3.9	5.5	5.5	14.6	15.1	16.0	18.2	30.1	35.6	39.6	40.2	55.0	53.3	73.0	97.8	80.3	85.2	79.6	83.3	82.7

[1] National Lime Association (*176*). Calcium oxide equivalent of calcium and magnesium compounds suitable for neutralizing soil acidity and computed with the following assumed calcium oxide equivalents: Limestone, 50; burned lime, 88; hydrated lime, 70; commercial marl, 40; farm-dug marl, 35; and miscellaneous (consisting of blast-furnace slag, chats, waste industrial lime, eggshells, carbide residue, etc.) 50 in 1930–44, and 40 percent thereafter. The cropland is the sum of the acreages of harvested cropland, crop failure, and fallow land reported in the immediately preceding "Census of Agriculture." For example, 1929 acreage data were used to calculate the rates for 1930 to 1934, inclusive, 1934 acreages for 1935–39, etc.

[2] States not listed use little or no liming material.

TABLE 153.—*Agricultural limestone: Average price per ton paid by farmers, by regions and States, 1954*[1] *and United States average prices, 1935–54*

State and region	Average price	State and region	Average price
	Dollars		*Dollars*
Maine	10.00	Minnesota	2.75
New Hampshire	9.35	Iowa	3.00
Vermont	8.10	Missouri	3.15
Massachusetts	7.40	Kansas	3.90
Rhode Island	9.65		
Connecticut	8.75	West North Central	3.18
New England	8.70	Kentucky	2.90
		Tennessee	3.58
New York	7.30	Alabama	6.20
New Jersey	6.00	Mississippi	5.40
Pennsylvania	6.70		
Delaware	7.00	East South Central	3.81
Maryland	7.00		
West Virginia	5.40	Arkansas	4.00
		Louisiana	6.50
Middle Atlantic	6.68	Oklahoma	4.15
		Texas	5.00
Virginia	4.95		
North Carolina	7.30	West South Central	4.83
South Carolina	5.25		
Georgia	5.90	Washington	12.00
Florida	12.00	Oregon	11.50
		California	13.00
South Atlantic	7.06		
		Pacific	12.10
Ohio	4.10		
Indiana	3.05		
Illinois	3.45		
Michigan	4.70	United States:	
Wisconsin	3.65	1935–39 Average	4.09
		1948	3.74
East North Central	3.63	1949	3.76
		1950	3.89
		1951	3.88
		1952	4.03
		1953	4.11
		1954	4.14

[1] U. S. Bureau of Agricultural Economics (*266*). Average of the prices quoted April 15 and September 15.

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